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Effect of Non-Metabolized Sweeteners on Health Parameters in Humans

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EFFECT OF NON-METABOLIZED SWEETENERS ON HEALTH PARAMETERS IN HUMANS

by

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ABSTRACT

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on Health Parameters in Humans

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The demand for functional foods is on the rise. These are food products that, besides providing energy and nutrients for life, provide additional health benefits. Xylitol, a five-carbon sugar alcohol, is a possible functional food, as well as a sugar replacement. The cost of xylitol has led manufacturers to add inulin, a nondigestible oligosaccharide, as an extender. Both xylitol and inulin have been suggested to provide added health benefits beyond being a reduced calorie replacement for sugar. We tested their impact on several human health parameters (fecal weight, fecal pH, fecal % moisture, blood lipids, blood glucose, and fecal micro flora) with two age groups, "older" (62.3 ± 9.63 y, n= 17) and "younger" (23.3 ± 2.02 y, n= 18). Participants were given two different treatments: A, 7.5 g xylitol and B, 7.5 g of xylitol in combination with 7.5 g of inulin. Treatment schedules were as follows: 2 weeks with one treatment, followed by a 2-week washout period, and 2 weeks with the treatment they had not previously taken. Comparisons were then made between each treatment and the washout period.

Due to the low number of participants, we were unable to obtain substantial significance on most observations, but important trends were detected. Treatment with xylitol by itself caused a decrease in stool mass compared to washout (control) values, while the addition of inulin reversed the decrease. This effect is important, as an increased stool mass is associated with a healthy gastrointestinal (GI) tract. Xylitol by itself or with added inulin provided for a more acidic colonic environment, which aids in mineral absorption and inhibition of pathogenic microbes. Both treatments were also noted to cause an increase the frequency of bowel movements compared to washout. As sugar replacements, it was observed that both treatments were associated with a decreased post-prandial blood sugar level from washout, indicating a benefit in blood glucose control. As for blood lipid values, xylitol caused a decrease, compared to washout, in triglycerides and VLDL levels while increasing HDL levels. However, the addition of inulin increased, from washout, the younger age group's serum triglycerides, but did not change xylitol's effects on VLDL and HDL levels of either age group. In the fecal micro flora, it was seen that taking the xylitol treatment caused a decrease, from washout, in amounts of all microbes studied, while the addition of inulin increased the fecal Lactobacilli counts of the older age group. Interestingly, stool qualities responded differently by age. Both treatments made the older population's stool more firm, while the same treatments made the younger population's stool more loose. Despite the added benefits, there was an increase in flatulence—small with the xylitol treatment, but nearly a three-fold increase with the addition of inulin. In conclusion, xylitol alone or with the addition of inulin can be labeled as a functional food.

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INTRODUCTION

Today Americans face several concerns in improving the overall health of the population. Among these is the increasing prevalence of American's becoming overweight, obese, and diabetic. Due to these concerns, people are continually seeking remedies that will ameliorate their problem. There is a link between diet and these problems; the question is what foods and food products will help?

In providing remedies to such problems, the field of nutrition science is seeking out foods and ingredients that qualify as functional foods. These are food products or ingredients which, beyond providing energy and nutrients for life, provide additional health benefits. In addressing the current concerns of obesity and diabetes, two food ingredients of recent interest are in the field of sweetener replacements. These compounds are inulin, a nondigestible oligosaccharide, and xylitol, a five-carbon sugar alcohol. Besides providing a reduced calorie substitute for sugar, they may possess other health benefits.

> The general term, functional food, can be defined as
>
> > a food ingredient (nutrient or not) which affects one or a limited number of physiological function(s) in the body in a targeted way so as to provide positive effects which may, in due course, justify health claims; or, if it provides a physiological or psychological effect beyond the traditional nutritional effect (Roberfroid, 1999, p. 1398s)

To be included in the term "functional food" the necessary science-based research must be done to support claims in three main areas: 1. Identify the interaction(s) between the food ingredient and the genomic, biochemical, cellular, or physiological function(s) in the body; 2. Demonstrate the functional effect(s) in relevant experimental and human

models; and 3. Investigate, in humans, the consequence(s) of the functional effect(s), including effect(s) on relevant biomarkers and possible health benefits (Cummings et al., 2001 p. 416s).

Within the area of functional foods, specific topics of interest have developed. One such topic is prebiotics. Prebiotics are foods or ingested compounds which have a beneficial effect on the health of the gastrointestinal microflora. For a food ingredient to be classified as a prebiotic, it must meet the following criteria: a) not be hydrolyzed or absorbed in the upper part of the gastrointestinal (GI) tract; in other words, any food ingredient that enters the large intestine intact; b) be a selective substrate for one or a limited number of potentially beneficial bacteria common to the colon; and c) be able to, as a consequence in selecting certain bacteria, alter the colonic microflora toward a potentially more healthy composition and/or activity (Roberfroid et al., 1998 p. 117). Prebiotics can provide a wide range of benefits including aiding digestion, providing a protective effect against food borne pathogens (Gibson and Rastall, 2004), decreasing the need and use of antibiotics, and even slowing the spread of antibiotic resistant pathogens (Sanders and Tompkins, 2002). An area in which prebiotics are possible is that of sugar replacements.

Currently Americans consume a large portion of their calories (almost 30 %) in the form of snack foods and "sweets," making these sweets a major target for the use and need of functional food ingredients. USDA statistics have shown that the average American consumes about 20 teaspoons of added sugar per day, not including the sugars naturally found in foods (Peirini, 2001). The overuse of added sugar has been associated with the increase in American obesity, and is of concern with its correlation with

diabetes. This being the case, several sweetener substitutes, including inulin and xylitol, have been introduced, and need to be evaluated as to their effects—both beneficial and detrimental.

Structure, Sources, and History

Inulin

Inulin is a linear fructan consisting of two or more 2, 1-linked beta-D-fructofuranoside units (Figure 1). Inulin polymers are synthesized from sucrose by repeated fructosyl transfer. It is an abundant energy storage carbohydrate found stored in the bulbs, tubers, and tuberous roots of over 36,000 plant species. Among these are the plant families Liliaceae, Amaryllidaceae, and Compositae, of which only two are

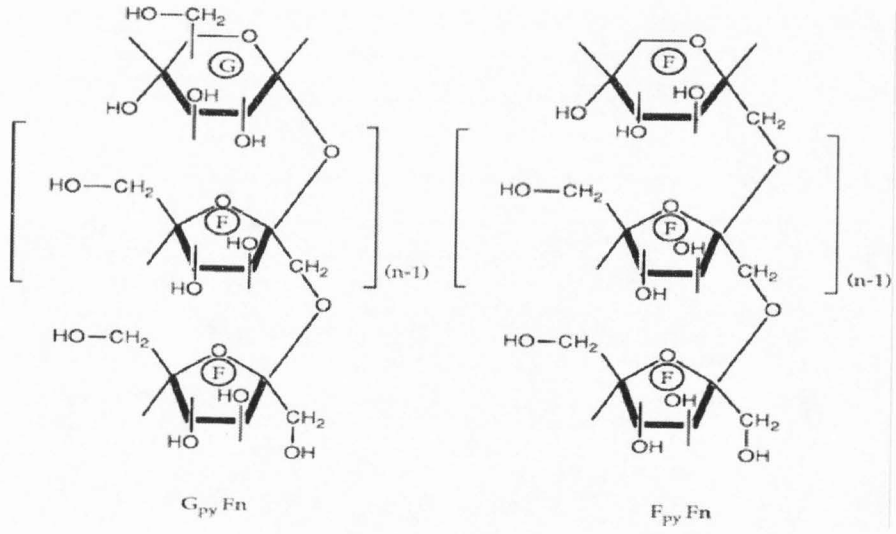


Figure 1. Chemical Structure of $G_{py}F_n$ and $F_{py}F_n$ Molecules in Inulin-type Fructans. *n* is the degree of polymerization or the number of -D-fructofuranose; G and F stand for glucose and fructose, respectively; $G_{py}F_n$ is -D-lucopyranosyl [-D-fructofuranosyl]$_{(-1)}$-D-fructofuranoside; and $F_{py}F_n$ is -D-fructopyranosyl-[D-fructofuranosyl]$_{(-1)}$-D-fructofuranoside (Roberfroid and Delzenne 1998).

typically used by the food industry. These are both from the Compositae family: Jerusalem artichoke (Helianthus tuberosus) and chicory root (Cichorium intybus). The chicory root is about 15-20% inulin. Native chicory inulin has an average degree of polymerization (DP) of 10-20, while that of Jerusalem artichokes is around six. Therefore, the food industry uses the native inulin to produce two different length products: short-chain fructans (DP 2-10), and long-chain fructans (Grizard and Chantal, 1999).

The manufacturing of inulin is quite similar to that of sugar from sugar beets. The roots are first harvested, sliced, and washed. Inulin is then extracted from the root by a hot water diffusion process, after which the inulin is purified and dried. The finished inulin powder typically contains 6-10% sugar (glucose, fructose, and sucrose) (Anderson et al., 1999). Inulin is primarily marketed by Orafti (Tienen, Belgium) and Cosucra (Momalle, Belgium) under the trade names of 'Raftliline' and 'Fibruline,' respectively (Grizard and Chantal, 1999). They are used as sugar substitutes, fat replacements, and/or for technological reasons (texturing agents, foam stabilizer, or improved mouth feeling) (Roberfroid and Delzenne, 1998).

Xylitol

Xylitol is a natural pentitol sugar alcohol, containing five carbons and five hydroxyl groups. It was discovered in 1891, but was not crystallized into a meta-stable form (mp 61-61.5°C) until 50 years later (Wang and van Eys, 1981). Xylitol can be found in free form throughout nature. It is in such fruits and vegetables as plums (1% of dry weight is xylitol), strawberries, cauliflower, and raspberries. It is also a byproduct of

the human metabolic process, accounting for 5-15 g/day (plasma levels of 0.03 to 0.06 mg per 100 ml). Industrially, xylitol is produced by yeast directly from glucose (Wang and van Eys, 1981), but the current industrial form is produced from agricultural materials rich in hemicellulose xylan, a long polysaccharide molecule consisting of D-xylose units. These hemicellulose-rich materials tend to be hardwoods but other sources may be used, such as rice, oats, wheat, corn, etc. Corn is currently being pursued as a source of choice in the United States. In the production process, the xylan molecules are first hydrolyzed into D-xylose, separated by large-scale column chromatography, and finally crystallized. Several companies now produce xylitol (Makinen, 2004).

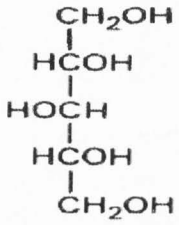


Figure 2. Xylitol Structure

Fate in the Gastrointestinal (GI) Tract

Inulin

Due to the beta configuration of the anomeric carbon in the fructose monomers, inulin is resistant to hydrolysis by human digestive enzymes (alpha-glucosidase, maltase-isomaltase, and sucrase) (Roberfroid and Delzenne, 1998). A study performed in 1997 reported an 88 % recovery of inulin in ileostomy effluent, showing that very little inulin is absorbed in the upper GI tract (Anderson et al., 1999). Both *in vitro* and *in vivo* data

have supported this, classifying inulin as a non-digestible oligosaccharide (Anderson et al., 1999; Oku et al., 1984).

Not all inulin however is passed through to the lower GI. There are four possibilities as to why there is not a 100 % recovery. Depending on permeability of endothelial cells, some inulin may be non-actively diffused into cells (Trottein et al., 1999). Fluid phase pinocytosis may also contribute to cellular uptake of inulin (Brunskill et al., 1996). Inulin can be fermented by the microflora in the ileum. Bach and Hessov (1995) looked at lactic acid and short-chain carboxylic acids (end products of carbohydrate fermentation) in the ileostomy effluent before and after inulin ingestion, and determined that fermentation could be a possible explanation for the 12-14 % loss in the small intestine (Bach and Hessov, 1995). And another possibility is that the low molecular weight components of inulin may, in fact, be hydrolyzed by the stomach acid. Either way, the majority of the inulin, avoids digestion in the stomach and small intestines and is almost fully available when entering the lower GI (Cummings et al., 2001).

Xylitol

Much research has already been done on xylitol's resistance to digestion by oral microflora; leading to its noncariogenic properties. Xylitol's digestion and absorption through the rest of the GI tract has not been so fully studied. It has been estimated that xylitol's absorption rate in the stomach and upper GI is 20-30 % of that of glucose, and often xylitol is not fully absorbed at all. That which is absorbed, is believed to be by non-active transport through the intestinal mucosa (Wang and van Eys, 1981). Makinen, of

the University of Turku, Finland believes that, "about one third of ingested xylitol (when large single doses are taken) is absorbed. The other two thirds of the ingested xylitol will reach the distal parts of the intestinal tract where it will be broken down by gut bacteria" (Makinen, 2004, p1).

A 1973 study showed that xylitol absorption could range anywhere from 49 to 95%, within three to four hours after swallowing it, regardless of chronic feeding or first time use (Asano et al., 1973). Still, others believe there may be an adaptation over time, but it is most likely due to the change in intestinal flora rather than other biochemical pathways (Wang and van Eys, 1981). One factor influencing the absorption of xylitol is the rate of gastric emptying. Salminen et al. (1984) looked at xylitol and gastric emptying and determined that xylitol absorption was increased with longer gastric emptying rates (Salminen et al., 1984). Some adaptation may, therefore, be possible when xylitol is included with food.

After absorption into the blood stream, liver uptake of xylitol is insulin independent, and causes little to no increase in blood glucose, insulin, or glucagon levels. Removal of xylitol from blood is a first-order kinetic process, with a half-life of 19-23 minutes (Asakura et al., 1969). The liver is the major site of removal of xylitol from the blood, and is responsible for 50-80 % of xylitol's metabolism. The remaining 20 % can be handled extrahepatically in the kidney, lung, erythrocyte, fat stores, and myocardium. No matter how it is processed, ingested xylitol seems to have little effect on its own levels in the blood (Wang and van Eys, 1981).

Metabolism and Caloric Value

Inulin

Inulin is non-digestible and not directly involved in human metabolism, however, it does have some caloric value. The fermentation of inulin provides important byproducts to be used as fuel for intestinal cells and elsewhere in humans. Thus, the actual caloric value of inulin is one to two kcal per gram derived from fermented byproducts (SCFA, lactate, and gases; Oku et al., 1984).

Xylitol

Xylitol, as mentioned, is absorbed through nonactive transport and uses a non-insulin dependent pathway for uptake into the liver where it is metabolized to glucose, glycogen, L-lactic acid, and in certain pathological states, L-xylulose (Figure 3; Wang and van Eys, 1981). These products can then be oxidized to carbon dioxide and water by the normal physiologic pathways of carbohydrate metabolism (Makinen, 2004). Two different enzymes in the cytosol are proposed to be involved in the metabolic processing of xylitol. One, a non-specific NAD-dependent polyol dehydrogenase (EC 1.1.1.10), may process xylitol in the same way as it does sorbitol and other sugar-alcohols. The other enzyme is a specific NADP-dependent xylitol dehydrogenase (EC 1.1.9). The metabolism of xylitol yields 4.06 kcal per gram, with one mole of it producing 35 moles of ATP, compared to 38 moles by glucose (Wang and van Eys, 1981).

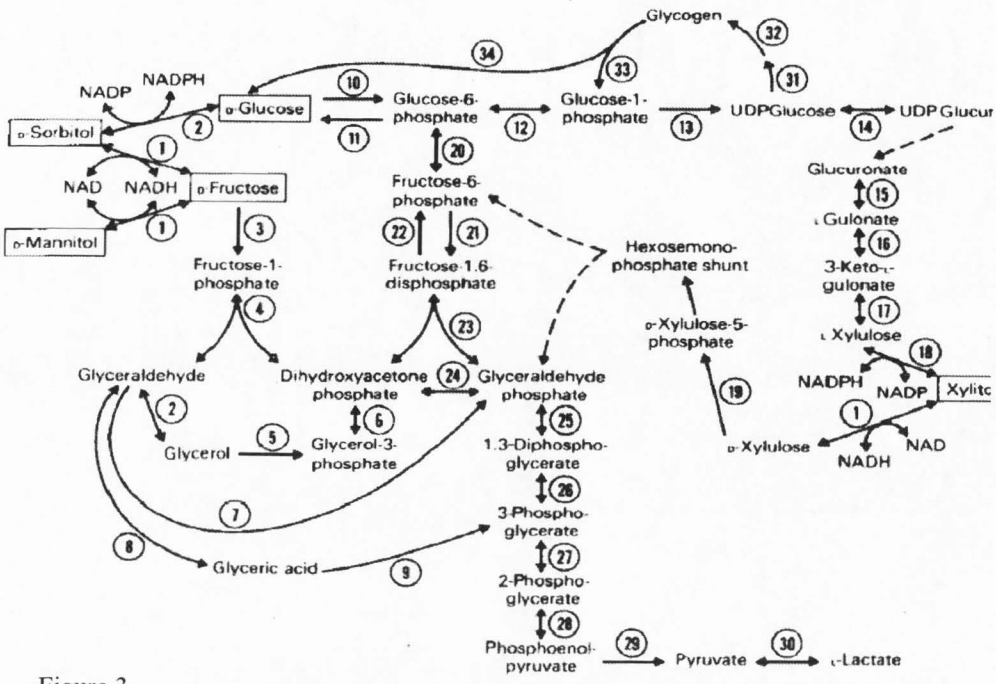


Figure 3. The metabolism of D-fructose, D-sorbitol, D-mannitol and xylitol in liver. 1, L-Iditol dehydrogenase (E C 1.1.1.14), NAD-dependent polyoldehydrogenase (E C 1.1.1.10); 2, aldose reductase (1.1.1.21); 3, ketohexokinase (2.7.1.3); 4, aldolase B (4.1.2.13); 5, glycerol kinase (2.7.1.30); 6. glycerol-3-phosphate dehydrogenase (1.1.1.94); 7, triosekinase (2.7.1.28); 8, aldehyde dehydrogenase (1.2.1.3); 9, glycerate kinase (2.7.1.31); 10, glucokinase (2.7.1.2); 11, glucose-6-phosphatase (3.1.3.9); 12, phosphoglucomutase (2.7.5.1); 13, glucose-1-phosphate uridylytransferase (2.7.7.9); 14, UDPG dehydrogenase (1.1.1.22); 15, glucuronate reductase (1.1.1.19); 16, L-gulonate dehydrogenase (1.1.1.45); 17, keto-L-gulonate decarboxylase (4.-1.1.34); 18, NADP-dependent xylitol dehydrogenase (1.1.1.9); 19, D-xylulokinase (2.7.1.17); 20, glucose phosphate isomerase (5.3.1.9); 21, phosphofructokinase (2.7.1.11); 22, fructosebisphosphatase (3.1.3.11); 23, fruxtose bisphosphate aldolase (4.1.2.13); 24, triose phosphate isomerase (5.3.1.1); 25, glyceralehyde-3-phosphate dehydrogenade (1.2.1.12); 26, phosphoglycerate kinase (2.7.2.3); 27, phosphoglycerate mutase (2.7.5.3); 28, enolase (4.2.1.11); 29, pyruvate kinase (2.7.1.40); 30, L-lactate dehydrogenase (1.1.1.27); 31, glycogen synthase (2.-4.1.11); 32, amylo-1-4,1-6-transglucosylase (2.4.1.18); 33, phosphorylase (2.4.1.1.); 34, oligo,1-6-glucosidase (3.2.1.10).

Health Benefits

Role as a Fiber (Effects on Blood Lipids)

Dietary fiber may have an effect on lowering blood cholesterol and triglycerides, by binding the dietary or biliary cholesterol in the intestinal lumen--increasing fecal excretion of the bile acids. As the undigested inulin and xylitol pass through to the lower GI, they may have this same binding effect. In addition, the short chain fatty acid

(SCFA) butyrate causes a G_1 arrest in cells which is thought to inhibit hepatic cholesterogenesis by decreasing activity of 3-hydroxy-3-methylglutaryl CoA reductase (HMG-CoA; Mazur et al., 1990). The cholesterol lowering effect may also stimulate the liver uptake of lipoprotein cholesterol by up-regulating the low density lipoprotein (LDL) receptor activity. A study involving rats with diets of 10-15 % oligosaccharide showed a decrease in body fat, triglyceridaemia, and phospholipidaemia. In the same study, using humans with diabetes, an intake of eight grams/day for 14 days of oligofructose was associated with reduced fasting blood sugar and serum cholesterol levels (Yamashita et al., 1984).

Short Chain Fatty Acid (SCFA) Production

Both inulin and xylitol can pass through the upper GI tract and can be present in the lower GI as potential substrate for fermentation by the resident saccharolytic microflora. The non-digestible carbohydrates which reach the large intestine and ferment provide bacterial biomass and beneficial intermediates and end products. These byproducts include gases (hydrogen, carbon dioxide, and methane), short chain fatty acids (acetate, propionate, and butyrate), organic acids (lactate, succinate, and pyruvate), and ethanol.

SCFA produced by fermentation are absorbed and metabolized; butyrate by the colonic epithelium; propionate, lactate, and acetate by the liver and muscle. In fact, these organic acids can provide up to 10 % of daily energy requirements (Topping, 1996). When inulin is fermented by the colonic bacteria, in terms of stoichiometry, the reaction yields 40 % SCFA, 15 % L-lactate, 5 % carbon dioxide, and 40 % bacterial biomass. In

vivo studies however, have had a difficult time showing significant changes in the concentrations of fecal SCFA because they are absorbed before excretion (Grizard and Chantal, 1999). The SCFA ratios produced in xylitol fermentation is unknown.

SCFAs are solely produced by microbial fermentation of prebiotic fibers in the gut, and have been associated with many benefits. The acidic nature of SCFAs lowers the colonic pH, thus diminishing the bioavailability of alkaline cytotoxic compounds. They can also inhibit growth of pH sensitive organisms, and promote dissolving of minerals such as calcium and magnesium. All SCFAs are associated with promoting the relaxation of blood vessels, which assists in maintaining the blood flow to the liver and colon. In addition, acetate enhances the absorption of cations, while propionate is linked to enhanced colonic muscular contraction (promoting laxation and relief of constipation). Propionate may also stimulate proliferation of the colonic epithelium and increase colonic electrolyte transport.

Butyrate stimulates colonic electrolyte transport, and is the major fuel source for metabolism by the colonocytes (Topping, 1996). Even though butyrate has a proliferative effect on normal colonic epithelium, it also has an anti-proliferative and differentiation inducing affects on various human colon carcinoma cell lines. Part of butyrate's effects can be linked to the direct inhibition of the enzyme histone deacetylase (HDAC), which causes cell-cycle arrest and cellular differentiation. In fact, HDAC inhibitors specifically effect regulation in transcription of genes linked to cell proliferation and differentiation, such as the cyclin-dependent kinase inhibitor p21/Cip1/WAF1 (Hassig et al., 1997). Therefore, butyrate can effect regulation of gene transcription.

SCFA have even been proposed to help in stress and cognitive ability, but the mechanisms are unknown (Gibson and Rastall, 2004). Linda Douglas 2004, a writer for *Neutaceutical World,* stated that SCFAs are crucial in many areas; gut integrity and function, immune system modulation, calcium absorption, and cholesterol maintenance (Douglas, 2004). In fact, most of the energy required by the colon is provided directly by SCFAs. Various "starved bowel" disorders, such as those known collectively as irritable bowel syndrome (IBS), are generally thought to be linked to inadequate SCFA production and a poor balance of gut microflora (Topping, 1996).

Decreased Glycemia and Insulinemia

Inulin

The use of inulin in the diet has been associated with several benefits. One benefit is maintaining blood glucose levels, but exact mechanisms are not yet understood. One study in which rats were fed a 10% oligosaccharide diet showed a reduction of glycemia and insulinemia by 17% and 26%, respectively. This, however, was in contrast to the fact that the glycemic response during a fasting glucose-tolerance test showed no difference between the control and treated rats (Kok et al., 1996). Another study using diabetic humans showed that taking 28 g/day of a synthetic oligofructan for fourteen days lowered fasting blood glucose levels (Yahashita et al., 1984). Yet another study showed that 10 g of inulin added to 50 g a wheat-starch meal lowered blood glycemic response in healthy human subjects, with no effect on wheat-starch absorption (Rumessen et al., 1990).

Inulin as a nondigestible oligosaccharide is not absorbed into the blood stream as are other carbohydrates that have an effect on blood glucose and insulin levels. Also, due to inulin's fiber-like properties, it may bind other macronutrients which affect blood glucose, delaying gastric emptying, and/or shortening transit time through the GI tract. Dietary fiber has been shown to up regulate both proglucagon mRNA transcripts and GLP-1 secretion in the gastrointestinal tract—providing an additional mechanism for lowering blood glucose levels (Drucker, 2001).

Inulin may also affect the hepatic metabolism of glucose, which could be due to the short-chain carboxylic acids, specifically propionate. Propionate inhibits gluconeogenesis by metabolic conversion to methylmalonyl-coenzyme A, an inhibitor of pyruvate carboxylase. Propionate also enhances glycolysis, in addition to decreasing plasma fatty acids (affects effecting gluconeogenesis; Lee et al., 1996).

Xylitol

Xylitol is not actively transported across the intestinal mucosa and does not require insulin for liver uptake, therefore it has been given a low glycemic index (not expected to have a significant effect on blood glucose levels). Also, a slow and limited absorption in the upper GI tract adds to the lack of influence on blood sugar. And as with inulin, the unabsorbed xylitol enters the lower GI tract and is fermented to provide the short chain fatty acids which aid in decreasing glycemia and insulinemia.

Xylitol-fed diabetic rats have restored glycolytic function and increased glycogen synthesis as shown in the Schricker et al. (1995) study. They reported that during the acute phase after trauma and sepsis, xylitol use prevented high plasma glucose

concentrations and free fatty acid release (Schricker et al., 1995). A 1996 study determined that the total increase in carbohydrate oxidation with xylitol is one fourth of that caused by glucose (Hamber and Almdal, 1996). This study also determined that xylitol metabolism resulted in a smaller change in plasma glucose, insulin, and thermogenic response than did glucose.

Microbiotic Interaction and Prebiotic Effects

Microbial balance is an important factor in the maintenance of intestinal homeostasis. Not only does it play an important role in the digestive process, but a "healthy" intestinal microflora maintains a microbial barrier against the development of pathogenic bacteria as well as playing a role in immunity and has several other health promoting aspects. There have been over 400 bacterial species identified in the human colon flora, with some 40 species present in large quantities. Disturbances in this ecologic balance, especially in the elimination of "health promoting," and/or overgrowth of pathogenic bacteria are risk factors for several GI disorders. These disorders can range from discomfort, to colitis, to cancer. Therefore, it is important to find out exactly how certain prebiotics influence the microbe balance.

Bacterial Growth

Inulin

Nearly 90% of inulin is delivered to the colon in an unhydrolyzed form while almost none is recovered in the stool, indicating that it is completely fermented by the colonic flora to SCFAs and gases. Using gases and SCFA production as end points,

showed inulin to be selective for stimulating growth of 8 different strains of bifidobacteria (Campbell et al., 1997). Another study showed that after 15 g/day of inulin for 2 weeks, Bifidobacteria had become the predominant microbial genus in the feces, with a decrease in gram positive cocci (Gibson et al., 1995). Other beneficial and occasional pathogenic bacteria such as *Klebsiella pneumoniae*, *Staphylococcus aureus*, *Bacteroides*, *Lactobacillus acidophilus*, *Lactobacillus rhamosus*, *Lactobacillus casei* (Heyman, 2000), and *Clostridium spp* (Femia et al., 2002) have been shown to grow well after inulin supplementation of the diet. The effects do seem to be dose-dependent, with the initial number of bacteria having a larger effect on the stimulation and growth than the dose (i.e., the smaller the initial count, the larger the stimulation; Tapianen et al., 2001).

Xylitol

Far less research has been done in the area of xylitol effects on GI bacterial growth. Most efforts have been concentrated on xylitol's inhibition of oral microbes. Since oral bacteria are unable to digest xylitol, the same has been expected for microbial flora elsewhere. Many studies have already shown xylitol's inhibition of cariogenic bacteria, such as *Streptococcus mutans* (Wang and van Eys, 1981; Tapianen et al., 2001; Uhari et al., 1996). Streptococci in general, including *S. pneumoniae* (which causes otitis media) are unable to digest xylitol. Due to xylitol's unique structure, it is taken up by the Streptococci through the phospho-transferase system, but since they are unable to digest the xylitol, the bacteria remove it in a futile cycle (Tapianen et al., 2001).

Despite this, xylitol has been shown to be a possible fermentable substrate for several beneficial strains of bacteria. Krishnan et al. (1980) indicated an increase in *Lactobacillus casei*, and *Klebsiella pneumoniae* (lactic acid producing bacteria), as well as an increase in gram positive microbes in rat cecal flora with xylitol (Krishnan et al., 1980). Some bifidobacteria strains have also been shown to prefer xylose over glucose, but whether they can metabolize xylitol is yet to be determined (Palframan et al., 2003).

Simulating the growth of "health promoting" bacteria such as bifidobacteria and lactobacilli causes the opportunistic pathogens to have a decreased chance of survival through tropism (competition for adhesive area) and growth medium. Two particularly noteworthy opportunistic pathogens are *Candida albicans* (yeast) and *Escherichia coli.* Both are normally found in the colonic microflora with no adverse effects at low concentrations, but when given the chance to overpopulate, they can flourish and cause major problems. Therefore, controlling their population is of major benefit.

Increased *C. albicans* levels have been associated with diarrhea, vaginitis, and stomatitis. Xylitol has been suggested as a possible inhibitor of *C. albicans,* since they proliferate on glucose (Vargas et al., 1993). Salminen et al. (1985) showed a decrease in number of yeast in human stool samples after only one dose of xylitol (Salminen et al., 1985). Pizzo et al. (2000) also showed a decrease in adhesion of *C. albicans* in the oral cavity, inhibiting the occurrence of infections such as thrush (Pizzo et al., 2000). In addition, Krishnan et al. (1980) reported that *E. coli* was unable to use xylitol as a metabolic substrate (Krishnan et al., 1980), while Salminen et al. (1985) showed a decrease in fecal aerobic streptococci of xylitol fed rats (Salminen et al., 1985).

Benefits of Increased Bifidobacteria and Lactobacilli

The first benefit of increasing colonic bifidobacteria and lactobacilli is a potential protective effect against colorectal cancer and infectious bowel diseases by inhibiting putrefactive bacteria (like *Clostridium perfringens*) and pathogenic bacteria (like *Escherichia coli*, *Salmonella*, *Listeria, Clostridium difficile*, and *Shigella*). The beneficial effect is due to both a decrease in pH (most likely by production of SCFAs) and bifidobacteria secreting a bacteriocin-like material against *E. coli, Salmonella, Llisteria Campylobacter,* and *Shigella* (Gibson and Wang, 1994). Oyarzabal and Conner (1995) were able to show an inhibitory effect on *salmonella* by inulin, as well as an additional stimulation of *Lactococcus lactis* growth (Grizard et al., 1999). The lowered pH may also stimulate the production of mucus (another protective agent), as well as increase endothelial wall thickness of the large bowel and increase in its blood flow (Roberfroid and Delzenne, 1998).

The second beneficial effect is the improvement of glucose, lipid, and cholesterol metabolism. This has been discussed previously with regards to inulin fermentation by the bacteria and production of propionate. Glucose and insulin are also factors in regulating fatty acid and triglyceride synthesis; therefore, controlling glucose and insulin can lead to decreased fatty acids, triglycerides, and even VLDL secretion by the liver (Kok et al., 1996). One study with rats showed a decrease in total serum cholesterol (Roberfroid and Delzenne, 1998) with an inulin added diet, but more research is required to prove a beneficial effect in human subjects. The exact mechanism of the SCFA in reducing serum cholesterol is also still in question. This is of importance, since acetate, a

metabolic precursor of cholesterol, and may be a possible cause of hypercholesterolemia; whereas propionate has been linked to lower serum cholesterol levels–possibly by inhibiting hydroxymethylglutaryl-CoA reductase (Roberfroid and Delzenne, 1998).

Third, is a beneficial effect in maintaining a positive nitrogen balance. This is by fiber-like properties which decreases renal nitrogen excretion. It has been shown that limiting ammonia formation and various end products of protein catabolism can decrease the risk for colonic cancer. It has been suggested that when fermentable carbohydrate intake is high, the amount of ammonia required to sustain peak bacterial growth may not be adequate, and blood urea is then required for bacterial protein synthesis in the cecum (Wang and van Eys, 1981). Also as an alternative to using dietary protein and sloughed cells for nitrogen, urea can be degraded to ammonia by bacterial ureases for microbial protein synthesis, which are then excreted with the feces. As expected, more urea is used when more bacteria are present, thereby further decreasing renal nitrogen excretion. In fact, adding 7.5 g of non-digestible oligosaccharide per 100 g of diet reduced blood urea and nitrogen in urine by 20-30% in rats (Grizard et al., 1999).

A fourth benefit is an improved bioavailability of essential minerals, as well as production of vitamins B1, B6, B12, and folic acid (Gibson and Wang, 1993). Rat studies show that a 5% oligosaccharide diet can increase Ca absorption 15-30%, and Mg absorption 20- 40% (Morita et al., 1998). This is believed to be due to the lowered pH from SCFA production, which increases the mineral's solubility (Grizard et al., 1999). The increase in Ca and Mg absorption in turn may help with controlling the rate of cell turnover (Roberfroid and Delzenne, 1998).

Conflicting studies have not shown a significant alteration in mineral absorption with dietary inulin supplementation (Roberfroid and Delzenne, 1998). However, two more recent human studies did show an increase in apparent Ca absorption of 11 and 12% (Roberfroid and Delzenne, 1998). Makinen reported that xylitol can also form complexes with calcium, which orally helps the remineralization of dental enamel and intestinally aids in facilitating absorption in the jejunum and ileum (Makinen, 2004). Other research suggests the possible involvement of xylitol in iron and zinc absorption as well, but there is insufficient data to be conclusive at this time.

Fifth is the benefit of increased fecal mass. Increased micro flora, binding of macronutrients by non-digestible carbohydrates, as well as an osmotic effect leads to an expected increase in fecal mass. Gibson et al. (1995) reported a 1.3 to 2.0 g increase in stool wet weight per gram of prebiotic ingested (Gibson et al., 1995). Krishnan et al. (1980) also showed an increase in total volume of fecal content with a xylitol substituted diet (Krishnan et al., 1980). This increase in biomass has been associated with several benefits: decrease in ulcerative colitis, cancer, and nitrogen excretion, as well as glucose tolerance (Jenkins et al., 1999).

A sixth health benefit, mostly associated with lactic acid bacteria (LAB), is increased humoral immunity as well as mucosal secretory IgA response. LAB seem to aid nonspecific defenses such as phagocytosis and cytokine production, and provide a trophic effect on the epithelium to increase secretion of anti-inflammatory or antimicrobial agents. There also appears to be a stimulation of the immune system by gut associated lymphoid tissue (GALT; Femia et al., 2002). One study indicated that inulin,

with *L. rhamnosus*, enhanced the production of interleukin-10 as well as the production of IgA in the cecum (Jenkins et al., 1999).

Safety and Side Effects

Inulin

Inulin was identified in the early 1800's and became commercially available in the 1980's. The Joint FAO/WHO Expert Committee on Food Additives stated that the commercial production of inulin by inulinase enzyme represents no hazard to human health as a food. In addition, their review resulted in no specified acceptable daily intake (ADI; 35th meeting, 1989), meaning no set limit on amounts. Inulin has now been classified as a natural food ingredient in most European countries, and given GRAS (generally recognized as safe) status in the United States (Grizard et al., 1999).

Xylitol

Xylitol was approved by the FDA in 1986, when the Federation of American Societies for Experimental Biology was commissioned by the US FDA to review the data concerning xylitol and other polyols. In their report, they found xylitol safe for human use and approved it as an additive for foods and special dietary uses (21CFR172.395). The Joint FAO/WHO Expert Committee on Food Additives has recommended an unlimited ADI, and suggested that no additional toxicology studies were needed. It is also approved for use in foods, pharmaceuticals, and oral health care products in more than 35 countries (Grizard et al., 1999).

Doses Used

Inulin

The average American already ingests one to four grams inulin each day, with the 90th percentile taking in 2 to 8 g. As a fat substitute, 1 g of fat is usually replaced with 0.25 g inulin; therefore, levels of 2-6 g are most often used as replacement in foods (Coussement, 1999). The doses used in studies have varied widely. They have ranged from 3 grams to 40 grams per day. One 1998 study showed a dose-dependent response of fecal flora to inulin intake ranging from 4 to 40 g/d (Roberfroid and Delzenne, 1998). Buddington et al. (1999) indicated that consumption as low as 4 g/d increased the bifidobacteria effect (Grizard et al., 1999). This bifidobacterial increase was also been seen in daily 3-8 g doses (Coussement, 1999). Yahashita et al. (1984) reported a significant reduction of serum glucose and cholesterol after 14 days of 8 g of inulin each day (Yahashita et al., 1984), and a decrease in triglycerides and total cholesterol with 9 g of inulin/d was seen over one month (Roberfroid and Delzenne, 1998). Ten grams of inulin per day has also been tested, and was found to be associated with lower blood glycemic response (Rumessen et al., 1990); however, another study reported no change in lipidaemia after 20 g/d for 4 weeks (Grizard et al., 1999). Doses of ten to twenty grams of inulin per day have also been used to produce increased fecal bulk in studies (Gibson et al., 1995), but for the most part mere modest levels produce the desired effects (Table 1.)

Table 1. Effects of Inulin Doses Studied

Inulin			
Doses(g)	**Positive Effect**	**Negative Effect**	**Reference**
2-6 g	Fat substitute	None	Coussement, 1999
3-8 g	↑ Bifidobacteria	None	Coussement, 1999
3, 6, 9 g/d		No diarrhea	Coussement, 1999
4 g/d	↑ Bifidobacteria	None	Grizard et al., 1999
8 g/d, 14 d	↓ serum glucose and cholesterol	None	Yahashita et al., 1984
9 g/d, 1 month	↓ triglycerides and total cholesterol	None	Roberfroid and Delzenne, 1998
10 g/d	↓ blood glucose	None	Rumessen et al., 1990
10-20 g	Increased fecal bulk	None	Gibson et al., 1995
5 g, 3 x/d		Flatulence, bloating	Grizard et al., 1999
20 g/d, 4 weeks	No change in lipidaemia	None	Grizard et al., 1999
30 g/d		50% no-effect level (NOEL) for diarrhea	Coussement, 1999
30 g/d		Abdominal cramps and diarrhea	Grizard et al., 1999

Xylitol

Xylitol is also commonly found in nature, with levels of up to 1% dry weight in plums, and 5-15 g/d made in the human body. Studies involving xylitol have used daily doses from as small as 4 g to the extreme of 400 g. A decrease in dental caries can be noticed in using only 4 g/d, as seen in a study using 4-4.5 pieces of gum/day for one year, with each piece of gum containing 1 g of xylitol (Wang and van Eys, 1981). Also, otitis media (inner ear infection) has been observed to be decreased in experiments using amounts as small as 8.4 g/d (Uhari et al., 1996). A dose of 25 g/d was shown to have an effect on glucose and lipid metabolism (Otto et al., 1993). A study using 1.6 kg/month was completed without negative effect, and resulted in a decrease in decayed, missing, or filled teeth (Wang and van Eys, 1981). One dose of 30 g of xylitol can cause a noticeable

decrease in yeast (Salminen et al., 1985), yet the largest doses of up to 400 g/d have been given orally with half of subjects showing no adverse side-effects (Wang and van Eys, 1981; Table 2.)

Table 2. Effects of Xylitol Doses Studied.

Xylitol			
Dose Used (g)	**Positive Effect**	**Negative Effect**	**Reference**
4 g/d, 1 year	↓ dental caries	None	Wang and van Eys, 1981
5-15 g/d	Made in the humans	None	Wang and van Eys, 1981
8.4 g/d	↓ otitis media	None	Uhari et al., 1996
10-85 g/d, 50d		Flatulence	Makinen, 2004
25 g/d	Improved glucose and lipid metabolism	None	Otto et al., 1993
30 g	↓ yeast	None	Salminen et al., 1985
45 g +		Diarrhea	Wang and van Eys, 1981
1.6 kg/month	↓ decayed, missing, or filled teeth	None	Wang and van Eys, 1981
100 g/d		1/2 had diarrhea	Wang and van Eys, 1981
400 g/d		1/2 had diarrhea	Wang and van Eys, 1981

Adverse Side-Effects with Doses

Inulin

Both inulin and xylitol are associated with similar adverse side-effects in the GI tract, namely flatulence and diarrhea. These side effects are similar to those seen from eating large quantities of fibrous fruits and vegetables or when a lactose intolerant person ingesting lactose. With inulin, Orafti, producer of commercial inulin, showed that people fall into three categories of sensitivity to inulin:

1. Non-sensitive, can consume 30 g/d or more with no undesirable reactions.
2. Sensitive, can consume 10 g/d without undesirable effects, but doses of 20 g or more may experience adverse reactions.
3. Very sensitive, can already experience undesirable effects at doses below 10 g/d (Coussement, 1999, p. 1414s).

Other research has shown that a single dose of 10 g/d will not cause a transient appearance of mild symptoms of intestinal discomfort (Roberfroid and Delzenne, 1998). A no-effect level (NOEL) for diarrhea associated with inulin of 50 % at 30 g/d has been established (Coussement, 1999). A 1999 study showed doses of 3, 6, and 9 g/d to cause no significant effect in children ages 10-13 years old (Coussement, 1999). However, a research review showed that Stone-Dorshow et al. (1999) indicated that 5 g, three times a day with meals led to gaseous symptoms, bloating, and abdominal discomfort (Grizard et al., 1999). The research review also showed that Bornet et al. (1999) reported borborygmi, abdominal cramps and diarrhea with 30 g/d (Grizard et al., 1999), but this depended on the degree of adaptation by the microflora.

Xylitol

With xylitol, one study using 10-85 g/d in a 50-day period showed flatulence as the most common side effect (Makinen, 2004). A 2-year study with subjects ingesting 100 g/day showed transient diarrhea in half the subjects, but adaptation developed within three weeks (Wang and van Eys, 1981). Still another investigation showed side-effects in doses of 45 g or higher (Wang and van Eys, 1981). Xylitol can cause flatulence and osmotic diarrhea, but doses causing these symptoms tend to depend more on the individual and their colonic microflora. One other side-effect, that needs more research, is that of xylitol and inulin being used as media by harmful bacteria (Wekell et al., 1980).

Purpose

The purpose of this study was to determine the physiological effects of 7.5 g of xylitol and 7.5 g of xylitol mixed with 7.5 g of inulin on humans, and to determine if these treatments can be classified as functional foods and prebiotics.

MATERIALS AND METHODS

Participants

Two age brackets of human subjects were chosen for this study. The older age group was chosen on the basis that being over 45 years old is one of the risk factors for type two diabetes, a risk that continues to increase with age. It has been reported that nearly 18.4% of the US population between 65 and 74 years of age has diabetes (Diabetes, 2004). Therefore, the "older" age group was to consist of those ages 45-75 years. The use of the two different age groups was also due to the knowledge that digestive disorders, diabetes, and change in cecal microflora increase with age (Hebuterne, 2003). The "younger" age group was defined as 18-27, or college age, as determined from the USU campus profile 2003-2004. The younger group was chosen to determine if age played a role in the effects of xylitol and inulin on humans.

Both the younger and older participants were recruited through posted flyers (Appendix A), emails, and word of mouth. The older age group was more difficult to find and required additional door to door recruitment. Upon verbally committing to participate, participants were given an outline of the study, and invited to come to an introductory meeting. In the introductory meeting, participants were informed as to the purpose of the study, and their role in participating.

Forms

At the introductory meeting, schedules (Appendix B) and instructions were distributed, detailing what participation would include. General background questionnaires (Appendix C), which had been adapted from The Utah Consortium for

Aging Studies, were administered to gather information on age, sex, weight, height (weight and height were measured at the introductory meeting), occupation, activity level, health, and medical histories.

Symptom diaries (Appendix D) were also handed out and instructions were given that diaries were to be recorded daily. The symptom diary recorded relative changes in bowel movements (diarrhea to constipation), quality of bowel movements (watery to pebbles), number of bowel movements, and flatulence (from same as normal; to severe gas, bloating, discomfort). The parameters chosen were based on common side effects associated with sugar alcohols and prebiotics (Wang and van Eys, 1981; Cummings et al., 2001). The symptom diary parameters were on a scale from –5 to 5 with 0 meaning "same as normal."

A written consent form (Appendix E), approved by the Utah State University Institutional Review Board on June 3, 2004 was read to the group. The consent for was then sent home with instructions to be signed prior to the start of the study.

Treatments

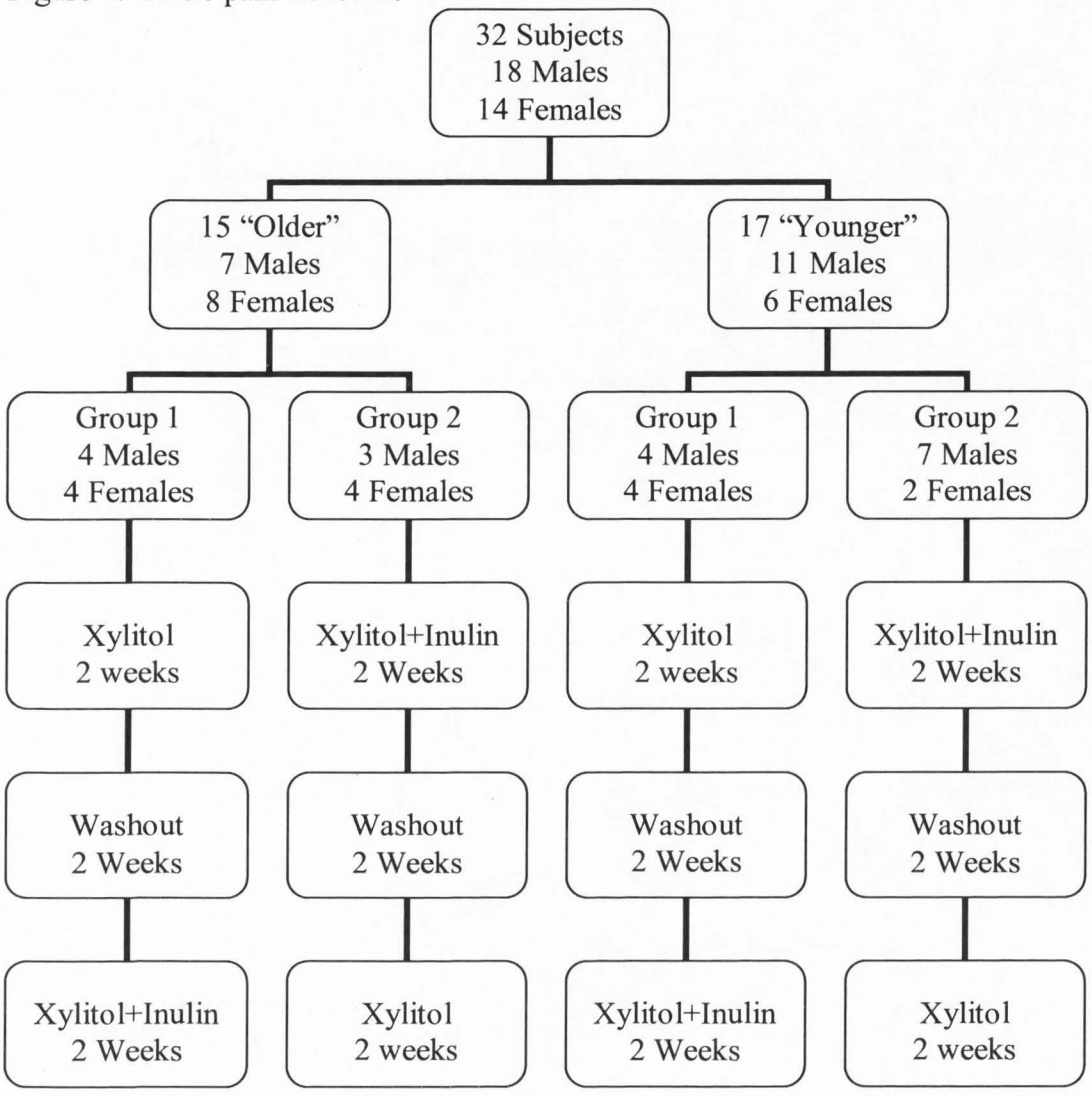
Treatments were given in a double blind manner labeled as A and B. Treatment A (A) consisted of 7.5 g of xylitol. Treatment B (B) consisted of 7.5 g of xylitol mixed with 7.5 g of inulin. Washout (WO) consisted of participants eating their normal diet with no treatment. Doses were chosen to provide a prebiotic effect yet have little to no laxative effect (Langlands et al., 2004).

Participant Schedule

Measurements were taken at the end of each 2-week period. Therefore, the

washout period was used as the baseline measurement (Figure 4).

Figure 4. Participant Schedule



Blood Collection for Lipid Panels

Participants were instructed to come having fasted for 12 hours on the last day of each 2-week period. Seven cubic centimeters of blood were drawn by a licensed phlebotomist into plastic Vacutainer separation tubes with lithium heparin. The blood was then separated by centrifuging for 15 minutes at 2500 rpm. Upon separation, the

blood was delivered to the Logan Regional Hospital for testing. Blood lipid values were quantified because SCFA produced by prebiotics may reduce serum cholesterol and triglycerides (Roberfroid, 1993).

Glucometers

Free Style Flash glucometers, purchased from Lee's marketplace pharmacy, were used for blood glucose readings. Participants were instructed to test their blood glucose on each day they made stool collections (the last three days of each 2-week period). Testing was to be done 1 hour before and after the meal in which the sachet was taken. Each participant was instructed on the proper use of the glucometer according to the manufacturer's directions. Blood glucose levels were monitored due to the fact that xylitol and inulin are reported to have low glycemic loads and will aid in lowering blood values (Cummings et al., 2001; Wang and van Eys, 1981).

Stool Collection

Stool collections were made in Albertson's brand 2-gallon ziploc bags fitted over the opening of a one gallon ice cream pail. Collections were made for the last 3 days of each 2-week period. Collections were made of all stools in a given day, material from each bowel movement being collected in a separate ziploc bag. The collections were taken to the lab the day following collection and processed upon receiving as describe in protocol by the Laboratory Corporation of America (Laboratory Corporation of America, 2003).

Stool Processing

Once the stool collections were received they were weighed for their total mass, and placed in a Seward Stomacher 400 at "medium" speed for 60 seconds (Morelli et al., 2003). Once the stools were stomached to homogenize it, three 5-10 gram samples were taken, weighed, placed on aluminum drying trays, and placed in an oven overnight at 100° C. After drying, they were weighed again to determine the amount of moisture lost in drying. After removing the 5-10 gram samples, the remaining collection was added to an equal weight of physiologic saline solution to maintain isotonic solution for microbiotic cells and stomached again for 60 seconds (Boehm et al., 2003).

Sample Plating for Bacterial Counts

After the second stomaching, a 1-2 gram sample was added to a sterile dilution bottle containing 100 ml of physiological saline solution and shaken to mix completely. A one ml sample was then pipetted into another sterile dilution bottle containing 100 ml of the physiological saline solution. This was done three more times to achieve a final dilution of 10^{10}. For each sample, a 1-ml aliquot was taken of each dilution and plated on one of four agars.

Agar Preparation

All agar materials were purchased from Fisher Scientific (Houston, TX). Each agar was prepared according to manufacture's instructions. These agars included aerobic--Sabouraud Dextrose Agar (BBL) for *Candida albicans* (Weig et al., 1999), MacConkey Agar (Difco) for *Escherichia coli* (March and Ratman, 1986), anaerobic--Rogosa SL Agar (Difco) for Lactobacilli (Murray et al., 1995) and Columbia Agar (BBL)

for Bifidobacteria. The Columbia Agar was then modified (Beerens, 1990) by adding 5 g/L glucose, 5 g/L cysteine hydrochloride, and 1.5 g/L agar to make a final agar concentration of 15 g/L. The modified Columbia was then boiled for one minute to dissolve ingredients and cooled to 70° C. Five milliliters of propionic acid was then added, and the pH was adjusted to 5.0 using NaOH. Once agars were prepared they were stored in a water bath at 55°C until plates were poured.

Plate Counting

Approximately 25 ml of agar was poured into separate Petri dishes, and swirled to mix with the one ml diluted sample. Plates then sat for 15–20 minutes to allow solidification of the agar. Once firm, the anaerobic plates were overlaid with enough agar to cover the initial pour. All plates were incubated at 78°C. The MacConkey Agar (MA) was incubated for 24 hours; the Sabouraud Dextrose agar (SDA) for 48 hours; and the Rogosa SL Agar (RSA) and modified Columbia (BA) for 72 hours. The agar-filled plates for anaerobic bacteria were placed in chambers with BD BBL GasPak Plus anaerobic system envelopes containing a palladium catalyst, after solidification and prior to incubation.

After incubation of the plates, total colony counts were determined using a darkfield counter. Total colony forming units per gram (cfu/g) of sample were calculated by multiplying the number of colonies counted on a plate times the dilution factor of which bottle it came from (i.e. 10^2, 10^4, 10^6, 10^8, 10^{10}). This number was then divided by the weight of sample added to the first bottle (10^2) divided by the total weight of sample plus saline (number of colonies counted x dilution factor)/ (sample taken from total stool

plus saline/ weight of total stool plus saline).

pH Measurements

Acidity readings were taken after adding the saline solution to the total stool sample. A Corning pH meter model 7 calibrated to 25° C was used for fecal pH determinations.3

Diet Analysis

The 24-hour dietary journals were recorded for the last 3 days of each 2-week period. Journals were analyzed using Diet Analysis Plus version 6.1 from ESHA Research (Salem, OR). Diets were analyzed for total calories, carbohydrates, protein, total fats, saturated fat, mono-unsaturated fat, poly-unsaturated fat, fiber, cholesterol, and water. Participants also recorded supplement intake, including fiber. Supplements were not included in the analysis, as their intake remained constant for each individual.

Statistical Analysis

Statistical analysis was with Microsoft Excel 2003. A two-tailed paired t-test was used to compare each subject's value at a given treatment to their value at washout. The SAS (Statistical Analysis System) package version 6.1 was also used to perform analysis of variance (ANOVA) and regression of each measurement with treatment (Appendix F and G).

RESULTS AND DISCUSSION

Significance

Regression using SAS showed no significant influence of treatment with any measurements made ($p<0.05$). As this study involved humans and their bowel habits, a large variation among individuals was expected, the large error bars (one standard error) indicate this. All data are given in an average $\pm$ standard error (Mean $\pm$ SEM). Paired t-tests were run using a null hypothesis of no change. In the paired t-tests, some significance was noticed comparing treatment results to washout results. All data presented hereafter will be considered trends only with no statistical significance, unless indicated with a p-value from the paired t-test. Each parameter measured is reported as results for the older age group, results for younger age group, and combined age group results when appropriate.

Participants

Each age group was split into two groups according to which treatment they started with. Group 1 started with A and finished with B; group 2 started with B and finished with A. The older group started with 17 individuals (8 males, 9 females). One male dropped out in the first week, claiming his increased flatulence was disruptive to his professional career. One female dropped out as well, sighting health reasons (unrelated to the study) as to why she must be excused. The remaining 15 had an average age of 62.3 $\pm$ 2.49 years. For the male group average height and weight were 1.8 $\pm$ 0.04 m and 82.6 $\pm$ 10.14 kg, respectively; therefore, their average body mass index (BMI) was 26.1 $\pm$ 2.81 kg/ m^2. The female group's average height and weight were 1.6 $\pm$ 0.06 m and 78.7

$\pm$ 5.48 kg, respectively; with a BMI of 29.2 $\pm$ 2.57 kg/ m^2. Ethnic background was not used in this study, as those completing the study in the older group consisted of 14 Caucasians and one Asian.

The younger group began with 18 individuals (11 males, 7 females), but one female was dropped in the first week due to lack of compliance. The 17 that completed the study were an average age of 23.3 $\pm$ 0.49 years. There were 15 Caucasians and two Asians in the younger group. The average height of the males was 1.8 $\pm$ 0.07 meters; weight, 86.6 $\pm$ 11.12 kg and BMI, 26.6 $\pm$ 2.97 kg/ m^2. The average height of the females was 1.7 $\pm$ 0.06 meters, weight, 65.0 $\pm$ 11.63 kg; with a BMI of 23.2 $\pm$ 5.43 kg/ m^2.

Stool Measurements

When carbohydrates reach the large intestine they may exhibit a laxative effect, especially polyol molecules which can tend to be small and osmotically active (Ruskone-Formestraux et al., 2003). Some individuals are quite sensitive to even minimal doses of such carbohydrates, yet there is a large variation among individuals and their tolerance to these differing doses (Cummings et al., 2001). At the doses used in this study we did not expect any such diarrhea effects. Since inulin is added in the commercial industry to decrease the risk of gastrointestinal discomfort, we monitored stool mass, percent moisture, and frequency of stools to detect any such effects or differences among treatments.

There are several factors that affect an individual's stool mass. The main contributors are water, bacteria (Tomlin and Read, 1987), and fiber. In fact, bacteria are responsible for up to half of the dry fecal weight (Stephen et al., 1987). Osmotic

molecules in the GI tract will also increase the stool mass by increasing the amount of water in the stool (Kazem and Davood, 2000). Fiber is a bulking agent that is not digested and forms the remaining major component of fecal material. In looking at a prebiotic effect, it was important to monitor any changes in fecal mass and bowel habits.

The National Institutes of Health Cancer Center has reported that an increased fecal bulk has been associated with a decreased risk of cancer and bowel disorders (National Institutes of Health, 2004). This being the case, stool weights in many Westernized populations are low (80-120 g/day), and are associated with an increased colon cancer risk. An average stool weight of 150 g/day, however, has been correlated with a reduced risk of such problems (Cummings et al., 1992).

Stool mass

Older subjects

When looking at the older group and comparing treatments to washouts (171.65 $\pm$ 26.53 g), they experienced a decrease in stool mass while taking treatment A (159.39 $\pm$ 25.36 g). This lowered stool mass is associated with an increased risk of colorectal cancer, but the effect was negated by the addition of inulin (treatment B). When using treatment B, the older participants had a slight increase in stool mass (175.25 $\pm$ 30.53 g) from the washout period. It is important to note that even though the treatment A did cause a decrease, it did not exceed the 150 g cut-off for a risk factor.

Younger subjects

The younger population also had a decreased stool mass (101.6 $\pm$ 11.60 g) while using treatment A, compared to the washout (115.5 $\pm$ 19.03 g). As with the older

population, the younger group's decreased stool mass with treatment A was reversed when taking treatment B (113.8 ± 13.40 g). Even though treatment B did not decrease the younger population's stool mass, they still remained in the "at risk" category with much of the western world.

Subjects combined

A difference in stool weights among age groups was expected, as research has shown a positive correlation between stool weight and increase in body mass and age (Kazem and Davood, 2000). Figure 5 shows the difference in average stool weights between the age groups. Both age groups experienced the decreased fecal weight with treatment A. Combined age group results with treatment A showed an average stool weight of 128.7 ± 14.12 g compared to their 141.8 ± 16.52 g at washout. Combined results for treatment B however, showed no real change (142.6 ± 16.62 g) from the washout period (Figure 6).

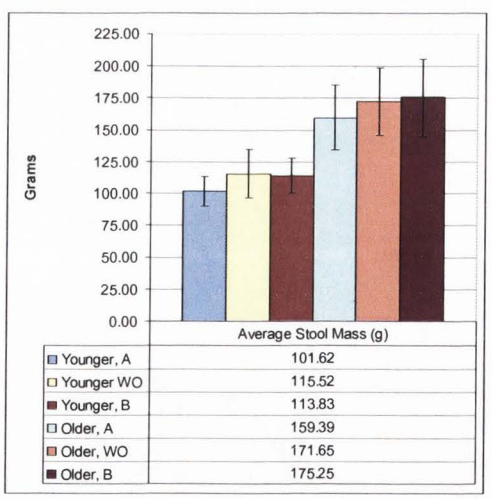


Figure 5. Average Stool Mass by Age Group and Treatment (Mean ± SEM).

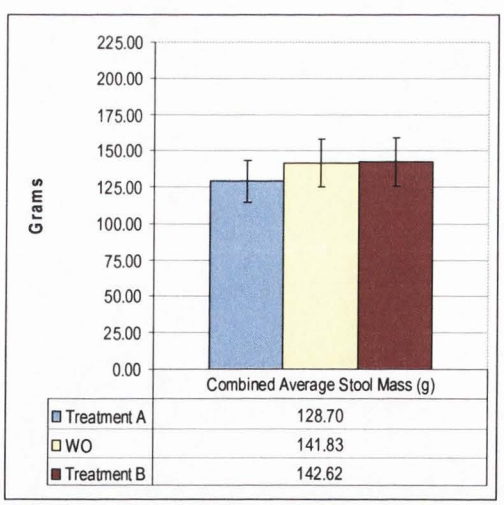


Figure 6. Combined Age Group's Results, Total Stool Mass by Treatment (Mean ± SEM).

Percent Moisture of Stool

Older subjects

As both xylitol and inulin enter the lower GI undigested, an osmotic effect was expected. Stools from the older group had average percent moistures of 73 $\pm$ 1 % while taking treatment A, a decrease compared to the 75 $\pm$ 2 % at washout. With treatment B, the stools had of 77 $\pm$ 4 % percent moisture, an increase from washout.

Younger subjects

The younger group as well showed no variation in stool percent moistures while taking either treatment (73 $\pm$ 1 % for each treatment). Therefore, the treatments produced little to no osmotic or watery diarrhea in the participants at this dose level.

Bowel Movements

Normal and frequent bowel movements have been associated with a protective effect against bacterial infection (Kitajima et al., 2002). A normal frequency is considered 1-3 bowel movements per day (Mahan, 2004). One side effect often associated with sugar alcohols is that of diarrhea, defined as more than three stools per day.

Older subjects

Participants kept within the healthy norm no matter which treatment was taken, but there was a noticed trend. Both treatments caused an increased number of daily bowel movements. With both treatments A and B, older participants had an average of 1.6 $\pm$ 0.17 stools per day. This represented an increase from the washout period with 1.4

$\pm$ 0.18 stools per day (Figure 7).

Younger subjects

Younger participants reported the same trend of an increase in stool frequency with either treatment. At washout they averaged 1.3 $\pm$ 0.16 stools per day. When taking treatment A they passed an average of 1.4 $\pm$ 0.13 stools per day. With treatment B, they passed 1.5 $\pm$ 0.14 stools which was statistically significant ($p<0.05$) compared to the number of stools at washout (Figure 7).

Combined age group values

Combining age groups showed that their average during washout was 1.4 $\pm$ 0.11 stools per day. Both treatments A and B were associated with an increase to 1.5 $\pm$ 0.11 stools per day (Figure 8). The treatments increase in frequency of daily stools remained within the average corresponding to healthy GI function. The increase helped keep participants more "regular", another benefit to those at risk of colorectal cancer. Also, neither treatment induced a diarrhea affect as is often expected with such compounds.

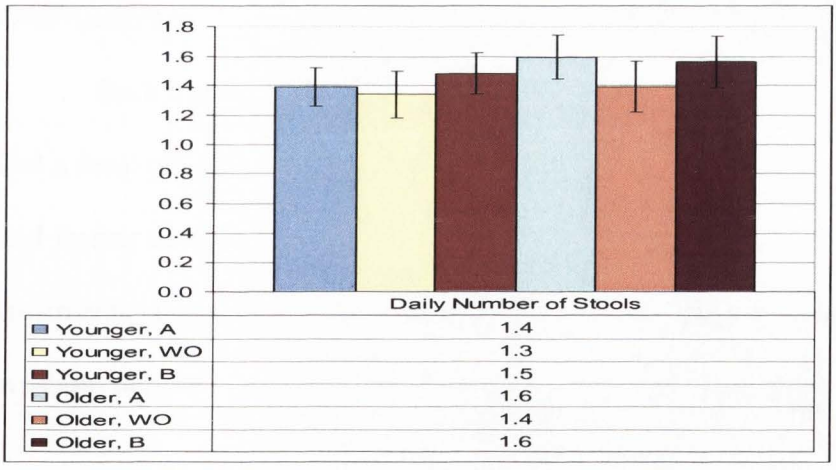


Figure 7. Daily Number of Stools by Age and Treatment (Mean $\pm$ SEM).

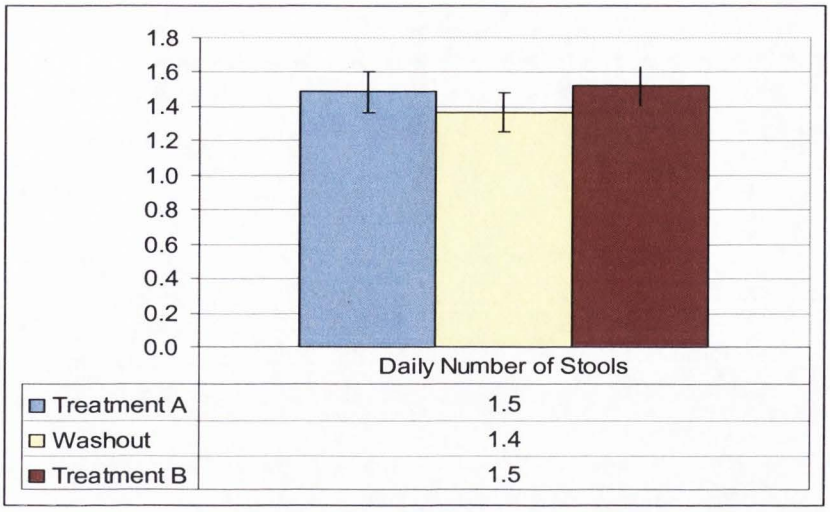


Figure 8. Daily Number of Stools by Treatment for Combined Age groups (Mean ± SEM).

Fecal pH

Short Chain Fatty Acids (SCFA) produced in the GI tract are absorbed quickly, causing difficulty in quantifying the actual type and amount of SCFA produced. One possible way to assess fermentation is by measuring fecal pH. This method can not determine which SCFA are produced, but will indicate their presence. SCFA are acidic which causes the decrease in fecal pH.

Older subjects

Both treatments caused a decrease in fecal pH. At washout, the older population had a fecal pH of 6.9 ± 0.16. While taking treatment A the pH declined to 6.3 ± 0.20, and further decreased to a fecal pH of 6.2 ± 0.15 with treatment B (Figure 9). Both treatments caused a significant ($p<0.05$) decrease in fecal pH relative to pH at the washout period.

Younger subjects

The changes in the younger age group's fecal pH were similar to that of the older group, but showed no statistical significance. Among the younger subjects, the washout period was associated with a fecal pH of 6.6 ± 0.10. When taking treatment A, the pH dropped to 6.3 ± 0.20. Taking treatment B led to a decline to 6.5 ± 0.10 (Figure 9).

Combined age group values

An acidic colonic environment is beneficial in being decreasing viability of pathogenic bacteria, specifically those that produce carcinogens. Acidity also increases the solubility and absorption of calcium and other minerals (Malhotra, 1982). This benefit was noted with each treatment. Overall, the average fecal pH was 6.7 ± 0.10 at washout. Combining the results showed a significant ($p<0.05$) decrease in fecal pH to 6.3 ± 0.14 with treatment A, and 6.4 ± 0.09 ($p<0.05$) with treatment B (Figure 10), compared to washout values.

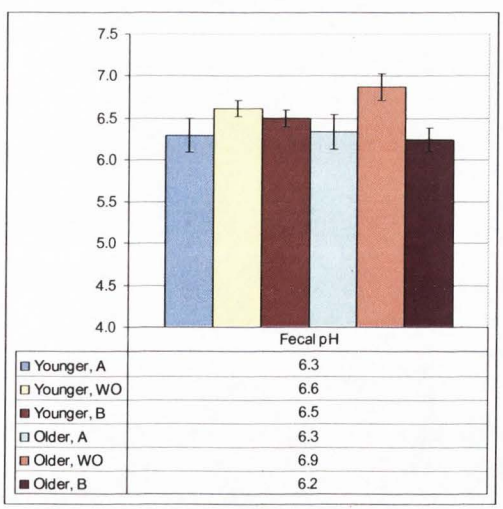


Figure 9. Fecal pH by Age Group and Treatment (Mean $\pm$ SEM).

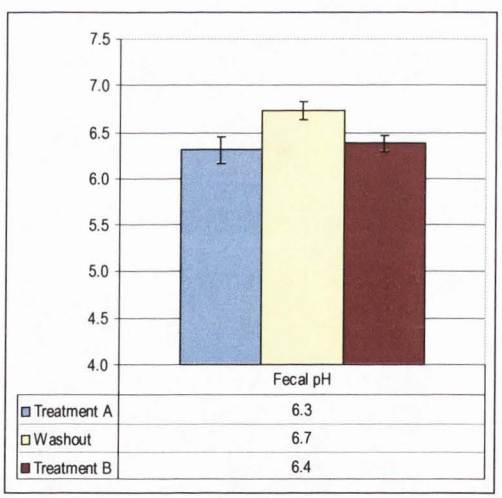


Figure 10. Fecal pH by Treatment for Combined Age Group's (Mean $\pm$ SEM).

Blood Glucose (BG)

Keeping blood glucose, lipids, and cholesterol within appropriate ranges can reduce risk of developing diabetes and cardiovascular problems (Diabetes Education, 2004). Control of these parameters not only means avoiding high levels, but maintaining minimal fluctuation as well. One study of diabetes patients in Massachusetts correlated blood glucose control with the incidence of short-term complications that led to hospitalization. Complications included hyperglycemia, hypoglycemia, electrolyte imbalance, and infections (septicemia, pneumonia, kidney and urinary tract infections, cellulitis, and bacteremia; Menzin et al., 2001).

Older subjects

During the washout, the older population had an average blood glucose level of 101.9 ± 1.75 mg/dL one hour before their treatment was taken with the first meal of the day. One hour after treatment, blood glucose levels averaged 129.8 ± 4.81 mg/dL, a 27.9 ± 4.04 mg/dL rise in blood sugar from washout. Pre-meal blood glucose levels significantly ($p<0.05$) dropped to 96.6 ± 1.95 mg/dL with treatment A compared to pre-meal values at washout. With treatment B, levels remained about the same as during the washout period at 101.2 ± 2.62 mg/dL. Post-meal blood glucose levels also declined with each treatment: Treatment A resulted in 124.94 ± 5.24 mg/dL, and treatment B resulted in 126.43 ± 6.41 mg/dL. Therefore, the fluctuation of blood glucose from before to after meal with treatment A increased slightly to 28.4 ± 4.19 mg/dL, while with treatment B it decreased to 25.2 ± 4.79 mg/dL (Figure 11).

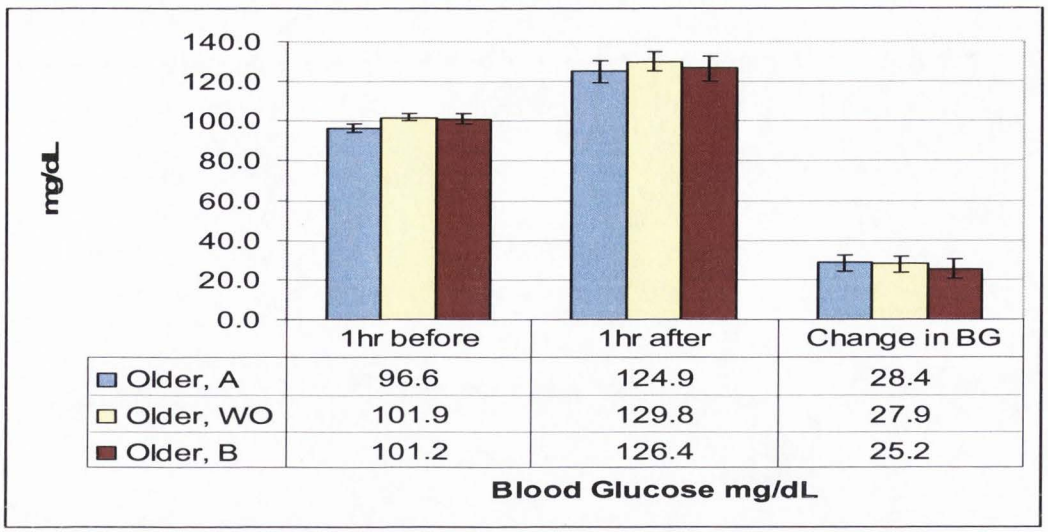


Figure 11. Older Age Group's Blood Glucose Values According to Treatment (Mean ± SEM).

Younger subjects

In the washout period (control) of the younger group, pre-meal blood glucose was 96.2 ± 2.10 mg/dL, increasing to 122.0 ± 5.67 mg/dL one hour after the meal; an increase of 25.8 ± 5.70 mg/dL. When taking treatment A, the pre-meal blood glucose remained relatively unchanged at 96.6 ± 1.90 mg/dL. Taking treatment A, post meal blood glucose did decrease from washout values to 117.0 ± 5.12 mg/dL. This represented a change in average blood glucose of 20.5 ± 5.44 mg/dL from pre- to post-meal, which was lower than the change seen at the washout period. Taking treatment B, pre-meal blood glucose was also unchanged from that of the washout, being 95.7 ± 2.06 mg/dL. Post meal blood glucose with treatment B (119.8 ± 5.44 mg/dL) was lower than during the washout period as well. Therefore, the change from pre- to post-meal blood glucose using treatment B was 24.4 ± 4.88 mg/dL (Figure 12).

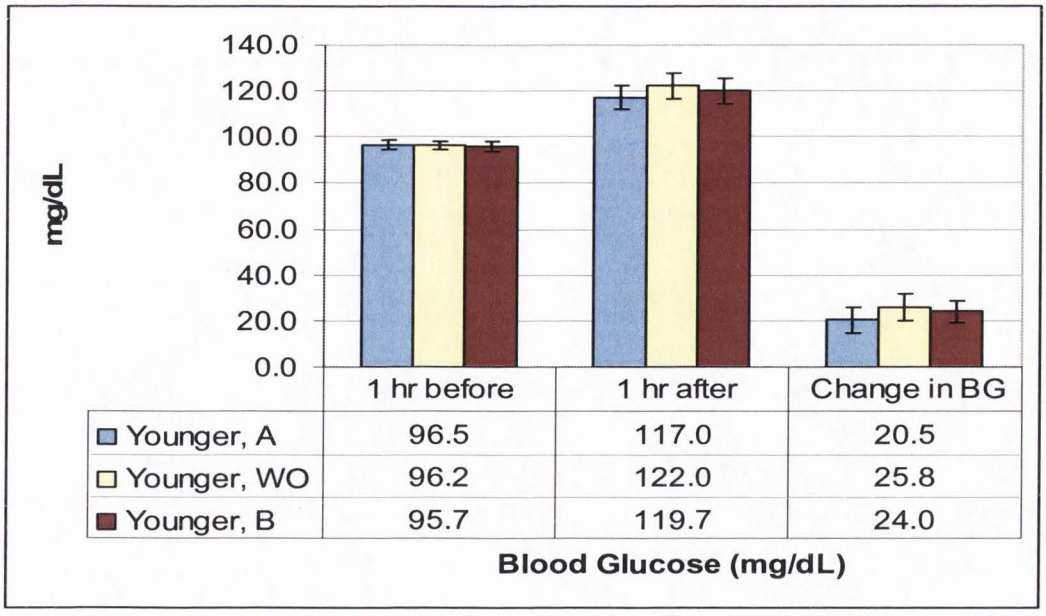


Figure 12. Younger Age Group's Blood Glucose by Treatment (Mean ± SEM).

Combined age group values

The xylitol treatment caused a drop in the pre-meal blood glucose of the older group compared to the washout, but not the younger. This is most likely do to the fact that the younger age group had a lower washout value to begin with. Fluctuation in blood glucose from pre- to post-meal also varied by age. One reason for this is that the younger group had lower values as than the older group, thus causing less of a change. However, both treatments did cause a similar drop in post-meal blood glucose levels compared to washout values—indicating an increased control of blood glucose following a meal. For the combined age group levels, post-meal blood glucose was decreased at 120.7 ± 3.67 mg/dL for treatment A ($p<0.05$) and 122.9 ± 4.13 mg/dL for treatment B from the washout levels of 125.7 ± 3.76 mg/dL (Figure 13).

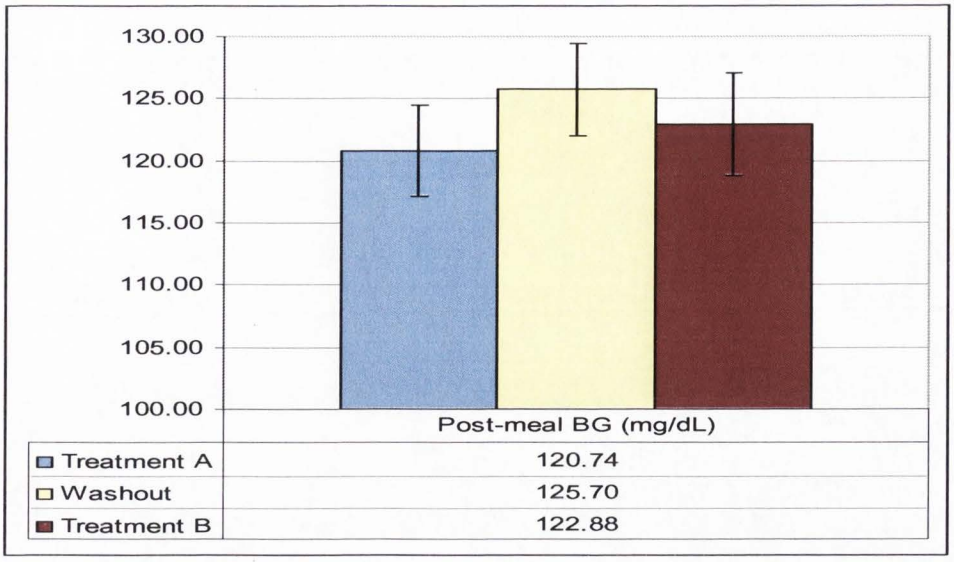


Figure 13. Post-meal Blood Glucose for Combined Age Group's (Mean ± SEM).

Blood Lipids

Heart disease is the number one killer of both men and women in this country. More than 90 million American adults, or about 50%, have elevated blood cholesterol levels. According to the National Heart, Lung, and Blood Institute's National Cholesterol Education Program, one of the risk factors for heart disease is elevated blood cholesterols (Henkel, 1999). Desirable blood levels are as follows: cholesterol,122-199 mg/dL; triglycerides,36-131 mg/dL with 132-199 mg/dL being borderline; HDL, 40-83 mg/dL; VLDL, 7-26 mg/dL; LDL, lower than 100 mg/dL; and total cholesterol to HDL ratio, less than 4.5 (IHC, 2004).

Monitoring these blood lipid values is important; their levels are well associated as risk factors for heart disease. As people age and/or become heavier, triglyceride and cholesterol levels tend to rise leading to risks of heart related problems. People with above-normal triglyceride levels (greater than or equal to 200 mg/dL) also have an

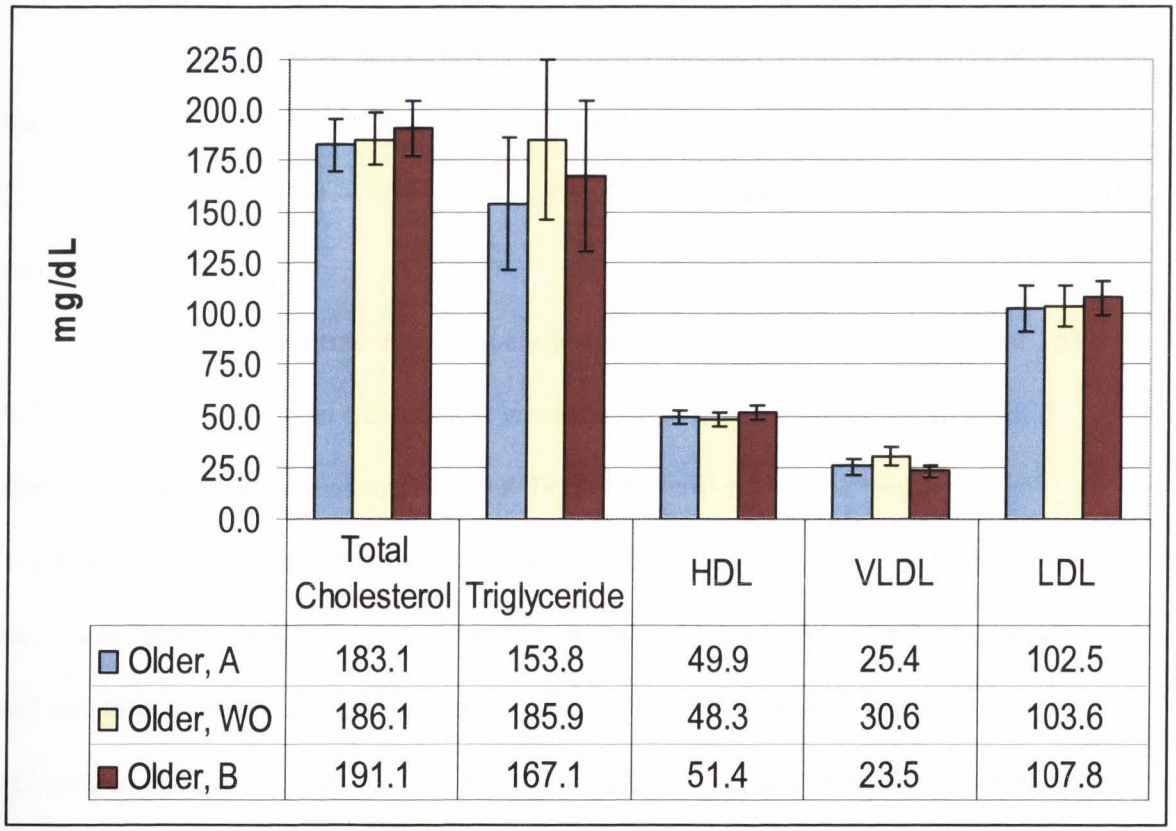
increased risk of heart disease (American Heart Association, 2004). In addition, a low HDL level [less than 40 mg/dL] increases the risk for heart disease. The American Heart Association has stated "your LDL cholesterol level can greatly affect your risk of heart attack and stroke. The lower the LDL cholesterol level, the lower the risk of heart disease. In fact, it's a better gauge of risk than total blood cholesterol" (American Heart Association, 2004). Lower VLDL levels are likewise beneficial.

Older subjects

In the end of the washout period, the older group had average total cholesterol levels of 186.1 $\pm$ 12.55 mg/dL. Treatment A decreased total cholesterol values to 183.1 $\pm$ 12.70 mg/dL, while treatment B increased it to 191.1 $\pm$ 13.25 mg/dL (still within the healthy range). As for triglycerides, the older group had an average of 185.9 $\pm$ 39.07 mg/dL during the washout period. Both treatments provided a beneficial decrease in triglycerides relative to the washout. With treatment A, triglycerides decreased to 153.8 $\pm$ 32.46 mg/dL, while after treatment B they decreased to 167.1 $\pm$ 37.10 mg/dL. Both values were significantly different ($p<0.05$) compared to washout values. Even though each treatment decreased triglycerides, they still remained in the borderline range.

With regard to cholesterol levels at washout, HDL was 48.3 $\pm$ 3.57 mg/dL, VLDL was 30.6 $\pm$ 4.38 mg/dL (outside the healthy range), and LDL was 103.6 $\pm$ 10.04 mg/dL (also outside the healthy range). This gave a total cholesterol to HDL ratio of 4.3 $\pm$ 0.40. Both treatments increased the HDL levels, a condition associated with a decreased risk of heart disease. HDL levels went to 49.9 $\pm$ 3.39 mg/dL with treatment A, and 51.4 $\pm$ 3.46 mg/dL with treatment B ($p<0.05$ compared to washout values).

The treatments also decreased the VLDL levels to 25.4 ± 3.97 mg/dL ($p<0.05$) with treatment A, and 23.5 ± 2.78 mg/dL with treatment B compared to washout. The decrease in VLDL levels brought them within the desirable range of the National Heart, Lung, and Blood Institute. LDLs also seemed to be affected by treatments. Taking treatment A decreased LDL levels from 103.6 ± 10.04 mg/dL to 102.5 ± 11.16 mg/dL, while taking treatment B increased levels to 107.8 ± 8.63 mg/dL (Figure 14). With the changes in cholesterol levels, both treatments decreased the ratio of total cholesterol to HDL. Using treatment A the ratio declined to 3.9 ± 0.36, and using treatment B it declined to 4.0 ± 0.38; both significant ($p<0.05$) relative to values determined for the washout period (Figure 15).



	Total Cholesterol	Triglyceride	HDL	VLDL	LDL
Older, A	183.1	153.8	49.9	25.4	102.5
Older, WO	186.1	185.9	48.3	30.6	103.6
Older, B	191.1	167.1	51.4	23.5	107.8

Figure 14. Older Age Group's Blood Lipids by Treatment (Mean ± SEM).

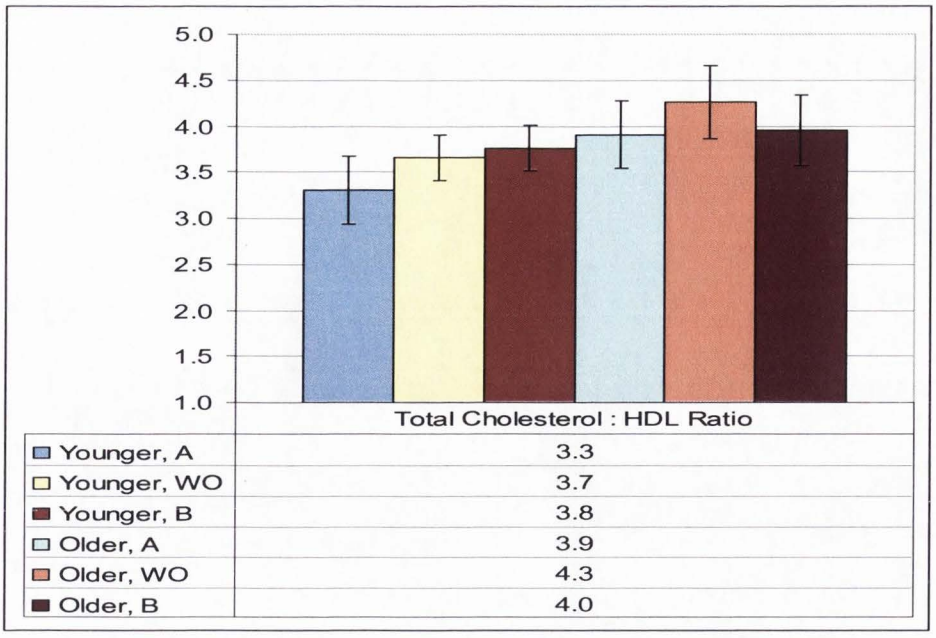


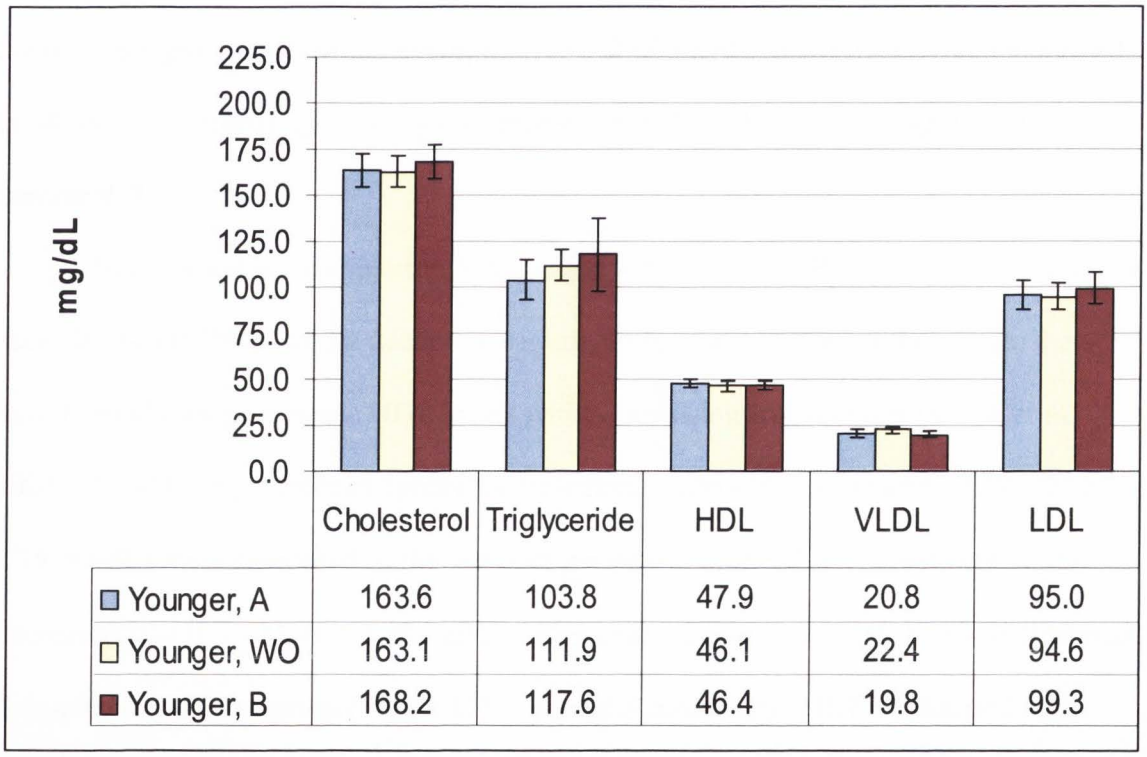
Figure 15. Total Cholesterol: HDL Ratio by Age Group and Treatment (Mean ± SEM).

Younger subjects

The younger group's washout or baseline values for blood lipids were as follows: total cholesterol, 163.1 ± 8.32 mg/dL; triglycerides, 111.9 ± 8.94 mg/dL; HDL, 46.1 ± 2.42 mg/dL; VLDL, 22.4 ± 1.79 mg/dL; LDL, 94.6 ± 7.23 mg/dL; and cholesterol : HDL ratio of 3.7 ± 0.24.

When taking treatment A, total cholesterol remained about unchanged at 163.6 ± 8.75 mg/dL. Reactions to treatment B were the same as in the older group as total cholesterol levels increased to 168.2 ± 8.78 mg/dL (still within the healthy range). Triglyceride levels were affected by treatment A in a similar manner to the older group, as they decreased to 103.8 ± 11.08 mg/dL. Results obtained after treatment B however, did not follow the results for the older group, as the treatment increased the younger group's triglyceride levels to 117.6 ± 19.87 mg/dL, but these values did not exceed the healthy limit.

Average serum values for HDL and VLDL on the other hand did follow the trend in the older group, as both treatments increased the HDL levels, while lowering VLDLs. Treatment A increased HDL to 47.9 ± 2.55 mg/dL, and decreased VLDL to 20.8 ± 2.24 mg/dL. Treatment B raised HDL levels slightly to 46.4 ± 2.49 mg/dL and decreased VLDL levels to 19.8 ± 1.33 mg/dL. Despite the decrease in VLDL, LDL levels rose in response to each treatment (treatment A, 95.0 ± 7.92 mg/dL; treatment B, 99.3 ± 8.30 mg/dL) (Figure 16). Due to these changes in lipids of the younger group, the total cholesterol : HDL ratio decreased with treatment A to an average of 3.3 ± .037, while with treatment B ratios rose to 3.8 ± .025 (Figure 15).



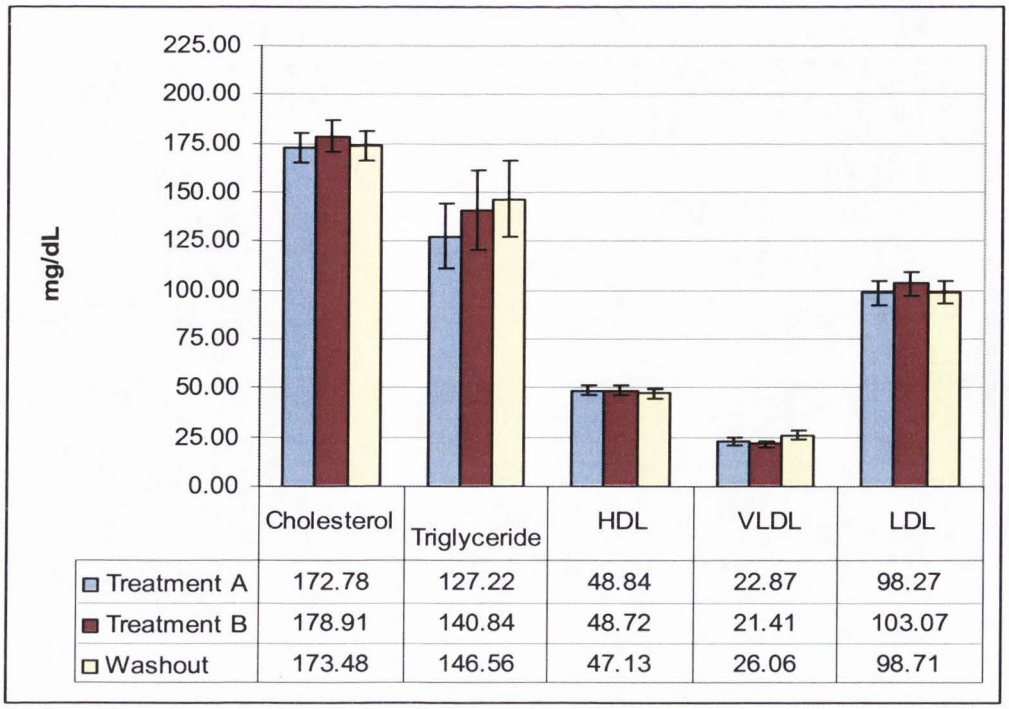
	Cholesterol	Triglyceride	HDL	VLDL	LDL
Younger, A	163.6	103.8	47.9	20.8	95.0
Younger, WO	163.1	111.9	46.1	22.4	94.6
Younger, B	168.2	117.6	46.4	19.8	99.3

Figure 16. Younger Age Group's Blood Lipids by Treatment (Mean ± SEM).

Combined age group values

Treatment A kept total cholesterol either the same or decreased the levels depending on the age. Treatment B however had the same effect in each age group. Combining results showed that treatment B raised total cholesterol to 178.91 $\pm$ 7.89 mg/dL from a washout value of 173.48 $\pm$ 7.47 mg/dL. Despite the increase, the elevated cholesterol levels were all within the optimal range. As for triglycerides, combined results for treatment A caused a combined decrease to 127.22 $\pm$ 16.62 mg/dL ($p<0.05$) from a washout of 146.56 $\pm$ 19.70 mg/dL. The effect of treatment B on triglycerides varied by age (decreasing values in the older group, while increasing values in the younger group); therefore results were not combined from washout. Combining results for both age groups yielded an average 47.13 $\pm$ 2.08 mg/dL at washout, which increased to 48.84 $\pm$ 2.06 mg/dL ($p<0.05$) with treatment A and to 48.72 $\pm$ 2.11 mg/dL with treatment B.

HDL values were consistently increased with treatment B. The rise in HDL levels may also be attributed to the decline in carbohydrate intake, as low carbohydrate diets have been shown to increase HDL levels while decreasing triglycerides (Volek et al., 2003). In addition, combined results for treatment A showed a decreased VLDL (22.87 $\pm$ 2.18 mg/dL) level compared to the washout period of 26.06 $\pm$ 2.31. Treatment B also decreased VLDL to 21.41 $\pm$ 1.47 mg/dL. However, responses of LDL levels to treatment depended on the age group (Figure 17). The total cholesterol: HDL cholesterol ratio therefore decreased with treatment A to 3.59 $\pm$ 0.26 ($p<0.05$) from a washout of 3.94 $\pm$ .023, but results to treatment B varied by age.



	Cholesterol	Triglyceride	HDL	VLDL	LDL
Treatment A	172.78	127.22	48.84	22.87	98.27
Treatment B	178.91	140.84	48.72	21.41	103.07
Washout	173.48	146.56	47.13	26.06	98.71

Figure 17. Blood Lipid Values by Treatment for Combined Age Group's (Mean ± SEM).

Dietary Analysis

It had been noted that consumption of sweetener replacements may lead to adaptation of eating habits to compensate for the reduced caloric intake (Vermut et al., 2003). Since net calorie intake was not changed by the treatments, and small doses were used, changes in diet were not expected. However some interesting changes were noticed among treatments despite the large variation in diets.

Older subjects

The older group's caloric intake varied slightly, but not significantly, by treatment, as the difference between individuals was large (noted by the large standard deviations) (Table 3). Inspection of macronutrient intake revealed that carbohydrate consumption tended to decrease during treatment periods. During the washout period the

older group ate 238.0 ± 20.48 g of carbohydrates per day, or about 55% of total calories.

Table 3. Older Age Group's Daily Calorie Intake by Treatment (Mean ± SEM).

	Older, A	Older, WO	Older, B
Calories	**1681.7**	**1703.6**	**1620.1**
SEM	**113.54**	**114.42**	**113.54**

With treatment A carbohydrate intake declined to 222.0 ± 17.38 g (52% of calories), and 222.1 ± 22.24 g (54% of calories) with treatment B. As for protein, the older group ate 66.3 ± 4.97 g at washout, or about 15% of total calories. This rose to 67.1 ± 5.09 g on treatment A (16% of calories). Protein intake on treatment B then decreased to 14% of calories, or 62.5 ± 6.50 g. Both treatments were associated with an increased fat intake from 57.0 ± 4.93 g at washout (30% of total calories). Treatment A raised fat intake to 62.5 ± 5.83 g (32% of calories) and treatment B raised it to 58.1 ± 5.36 g (still 32% of calories) (Table 4).

Table 4. Older Age Group's Macronutrient Intake by Treatment (Mean ± SEM).

	Protein (g)	Carbohydrates (g)	Total Fat (g)
Older, A	**67.1 (16%)**	**222.0 (52%)**	**62.5 (32%)**
SEM	**5.09**	**17.38**	**5.83**
Older, WO	**66.3 (15%)**	**238.0 (55%)**	**57.0 (30%)**
SEM	**4.97**	**20.48**	**4.93**
Older, B	**62.5 (14%)**	**222.1 (54%)**	**58.1 (32%)**
SEM	**6.50**	**22.24**	**5.37**

When looking at a classification of fats, saturated fats are considered the most detrimental to your health. Monounsaturated fats have been associated with lowering "bad cholesterol" (LDL) and leaving the "good cholesterol" (HDL) levels the same. Polyunsaturated fats however tend to lower both LDL and HDL levels (remember-- high

levels of HDL are beneficial; National Foundation for Cancer Research, 2004). When classifying the dietary fat component down for the older group, it was noted that the saturated fat consumption tended to remain about the same regardless of treatments. Intake of monounsaturated fats, on the other hand, increased with both treatments by 2-3 grams from the washout levels of intake. Consumption of polyunsaturated fats (PUFA) were likewise increased. At washout, the older group ate 6.5 $\pm$ 1.06 g of PUFA. With treatment A, PUFA intake rose to 9.9 $\pm$ 1.32 g, as it did with treatment B, to 9.6 $\pm$ 2.09 g (Table 5).

Table 5. Older Age Group's Daily Fat Consumption by Treatment (Mean $\pm$ SEM).

	Saturated Fat	**Monounsaturated Fat**	**Polyunsaturated Fat**
Older, A	**20.8**	**16.7**	**9.9**
SEM	**2.69**	**1.97**	**1.32**
Older, WO	**19.5**	**13.8**	**6.5**
SEM	**1.90**	**1.90**	**1.06**
Older, B	**18.5**	**16.0**	**9.6**
SEM	**1.65**	**1.94**	**2.09**

Water intake varied greatly by individual and treatment, but it did appear that water intake declined with treatments (Table 6). In contrast to the decreased drinking of water, fiber intake seemed to increase when consuming the treatments. At washout, the older group ate 18.7 $\pm$ 2.48 g of fiber. When taking treatment A, this rose to 22.4 $\pm$ 2.59 g ($p<0.05$) compared to washout, while treatment B was associated with an increase to 20.5 $\pm$ 3.29 g (Table 7).

Table 6. Older Age Group's Daily Water Intake by Treatment (Mean ± SEM).

	Older, A	Older, WO	Older, B
Water Intake (g)	**1780.8**	**2146.1**	**1895.9**
SEM	**237.23**	**327.88**	**256.72**

Table 7. Older Age Group's Daily Fiber Intake by Treatment (Mean ± SEM).

	Older, A	Older, WO	Older, B
Fiber	**22.4**	**18.7**	**20.5**
SEM	**2.59**	**2.48**	**3.29**

Dietary cholesterol was also assessed. At washout, the older group tended to consume 184.1 ± 22.57 mg. This increased with treatment A to 227.3 ± 155.98 mg, but decreased with treatment B to 175.7 ± 30.00 mg (Table 8).

Table 8. Older Age Group's Daily Cholesterol Intake by Treatment (Mean ± SEM).

	Older, A	Older, WO	Older, B
Cholesterol (mg)	**227.3**	**184.1**	**175.7**
SEM	**40.30**	**22.57**	**30.00**

Younger subjects

There was also a large flux in caloric intake among the younger population, with a tendency to consume fewer calories when using either treatment, compared to the washout period (Table 9). When comparing macronutrients, there was again a decrease in carbohydrate intake from the washout value of 286.4 ± 25.90 g. But this did not correlate with a decrease in percent of calories (52%). With treatment A carbohydrate intake declined to 267.8 ± 23.03 g, while with treatment B it dropped to 273.2 ± 23.96 g. With all treatments carbohydrates made up 52% of calories. As with the older group,

protein consumption remained about the same, 80.1 ± 7.95 g with treatment A compared to the washout values of 79.8 ± 6.50 g, both 15% of calories. In contrast to the older group, treatment B was associated with an increase in protein intake to 16 % of calories (86.3 ± 8.76 g), relative to the washout level. In addition, total fat intake declined with each treatment; treatment A caused it to drop slightly to 77.2 ± 8.61 g, while with treatment B it went to 72.4 ± 7.70 g; in comparison to a washout value of 78.1 ± 7.49 g of fat each day (Table 10). Due to the change in calories by treatments, the change in fats was not associated with a change in percent of total calories.

Table 9. Younger Age Group's Daily Calorie Intake by Treatment (Mean ± SEM).

	Younger, A	**Younger, WO**	**Younger, B**
Calories	**2067.94**	**2133.13**	**2062.31**
SEM	**171.20**	**187.88**	**176.36**

Table 10. Younger Age Group's Daily Macronutrient Intake by Treatment (Mean ± SEM).

	Protein (g)	Carbohydrates (g)	Total Fat (g)
Younger, A	**80.1 (15%)**	**267.8 (52%)**	**77.2 (33%)**
SEM	**7.95**	**23.03**	**8.61**
Younger, WO	**79.8 (15%)**	**286.4 (52%)**	**78.1 (33%)**
SEM	**6.50**	**25.90**	**7.49**
Younger, B	**86.3 (16%)**	**273.2 (52%)**	**72.4 (32%)**
SEM	**8.76**	**23.96**	**7.70**

Water intake varied so much that no conclusions could be reached with regard to effect of either treatment (Table 11). Research has shown that although it seems that

Table 11. Younger Age Group's Daily Water Intake by Treatment (Mean ± SEM).

	Younger, A	Younger, WO	Younger, B
Water Intake (g)	**2205.9**	**2181.6**	**2040.1**
SEM	**266.79**	**232.78**	**224.32**

dehydration can reduce frequency and weight of stools in healthy volunteers, additional fluids given to healthy individuals who were adequately hydrated, had no effect on stool weight (Chung et al., 1999). The younger group however, did show a difference in fiber intake by treatment. At washout, they consumed an average of 14.9 ± 1.61 g of fiber. With treatment A this rose to 15.9 ± 1.74 g, but declined to 13.3 ± 2.17 g with treatment B (Table 12.)

Table 12. Younger Age Group's Daily Fiber Intake by Treatment (Mean ± SEM).

	Younger, A	Younger, WO	Younger, B
Fiber	**15.9**	**14.9**	**13.3**
SEM	**1.74**	**1.61**	**2.17**

Consumption of fats did vary from that of the older group. Polyunsaturated fat intake remained constant regardless of treatment and during washout. Saturated fat consumption on the other hand showed a tendency to increase with treatment A to 34.9 ± 6.00 g per day from the washout of 26.8 ± 2.77 g. With treatment B dietary saturated fat declined to 24.3 ± 2.52 g (Table 13).

Table 13. Younger Age Group's Daily Fats Consumption by Treatment (Mean ± SEM).

	Saturated Fat	Monounsaturated Fat	Polyunsaturated Fat
Younger, A	**34.9**	**23.4**	**9.8**
SEM	**6.00**	**3.78**	**1.26**
Younger, WO	**26.8**	**21.3**	**9.8**
SEM	**2.77**	**1.87**	**1.71**
Younger, B	**24.3**	**22.3**	**9.8**
SEM	**2.52**	**2.88**	**1.61**

The daily recommendation for cholesterol by the American Heart association is less than 300 mg per day (American Heart Association, 2004). The younger group consumed less than the recommended level during all periods measured. They ate even less cholesterol when taking either treatment than during the washout period (Table 14).

Table 14. Daily Cholesterol Intake by Younger Age Group and Treatment (Mean ± SEM).

	Younger, A	Younger, WO	Younger, B
Cholesterol (mg)	**262.8**	**271.1**	**254.1**
SEM	**47.50**	**23.80**	**24.98**

Subjects combined

There was such a wide variation in diet among participants that it was difficult to draw any conclusions. An interesting finding was the difference in caloric and fiber intake between the age groups. The younger group ate more calories, but less fiber than the older group. This difference in fiber intake may well contribute to the difference in stool masses between the age groups. In addition, research has shown that fiber intake is inversely proportional to fasting triglyceride levels (Albrink et al., 1979). Therefore, since the younger group ate less fiber it was not surprising that triglyceride levels were higher, while the older group ate more fiber and their triglyceride levels were lower.

One trend that became apparent was that of a decreased carbohydrate intake when taking either treatment compared to the washout values (Figure 18). This is of interest, as high-carbohydrate diets have been shown to increase triglyceride levels by stimulating fatty acid synthesis independent of sex, body mass index, or insulin levels (Hudgins, 2003).

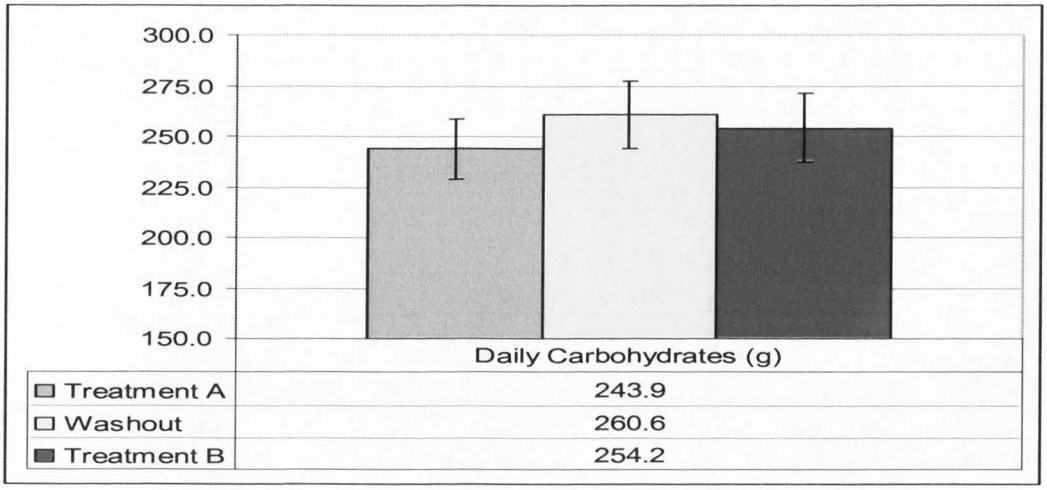


Figure 18. Combined Age Group's Daily Carbohydrate Intake by Treatment (Mean ± SEM).

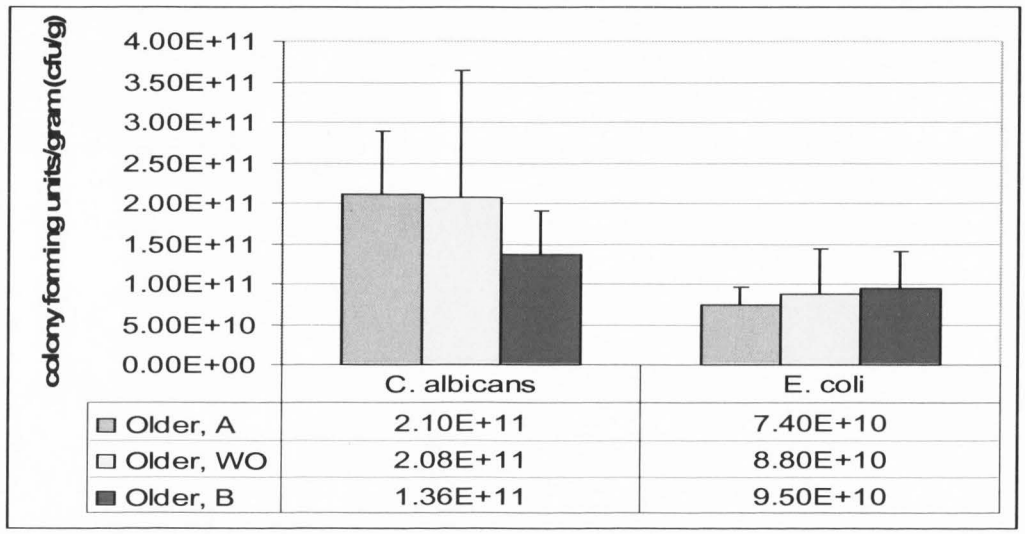
Microbes

Diseases of the GI tract are still of major economic and medical concern, as they continue to present an infection problem (Cummings et al., 2001). To determine whether a prebiotic effect with the treatments occurred, colony counts of fecal samples were measured. Deviations from the average are quite large as human colonic bacteria vary tremendously between individuals. Due to difficulty in identifying Bifidobacteria colonies, the numbers may not be accurate for that specific microbe.

Older subjects

Candida albicans are yeast, that if overpopulated in the colon can spread and cause yeast infections mainly in women, but men as well. *Candida albicans* can also be associated with other clinical symptoms such as diarrhea, stomatitis, and thrush. When looking at the results from the older group, we found that fecal counts of *Candida albicans* were about the same when using treatment A (2.10E+11 ± 7.82E+10 cfu/g)

compared to the washout levels (2.08E+11 ± 1.55E+11 cfu/g), but decreased when using treatment B (1.36E+11 ± 5.46E+10 cfu/g; Figure 16). *Escherichia coli* are also commonly found in the digestive tract without causing any harm, but when certain strains begin to proliferate, they can cause severe problems (Bennish and Seas, 1997). We found *E. coli* counts were lower with treatment A (7.40E+10 ± 2.15E+10 cfu/g), but rose with treatment B (9.50E+10 ± 4.48E+10 cfu/g) compared to the washout period (8.80E+10 ± 5.50E+10 cfu/g) (Figure 19).

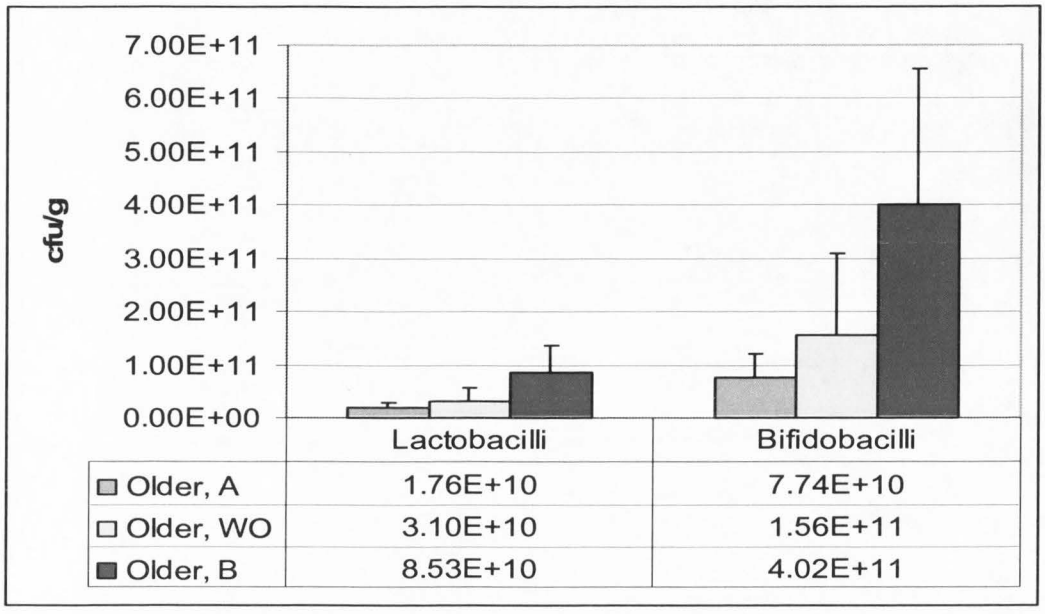


	C. albicans	E. coli
Older, A	2.10E+11	7.40E+10
Older, WO	2.08E+11	8.80E+10
Older, B	1.36E+11	9.50E+10

Figure 19. Fecal *C. albicans* and *E. coli* Counts of Older Age Group by Treatment (Mean ± SEM).

Bifidobacteria and Lactobacilli in the intestinal tract have been suggested to provide a natural control mechanism to prevent the overgrowth of *Candida albicans* and *Escherichia coli* (Weig et al., 1999). Measuring fecal samples for the older group for beneficial bacteria, treatment A resulted in a decrease in Lactobacilli (1.76E+10 ± 1.11 E+10 cfu/g), and a possible increase in Bifidobacteria (7.74E+10 ± 4.39E+11 cfu/g). Treatment B on the other hand, produced an increase in both Lactobacilli (8.53E+10 ±

5.21E+10 cfu/g) and Bifidobacteria (4.02E+11 ± 2.53E+11 cfu/g). The washout period gave counts of 3.10E+10 ±2.53E+10 cfu/g for Lactobacilli, and 1.56E+11 ± 1.51E+11 cfu/g for Bifidobacteria (Figure 20).

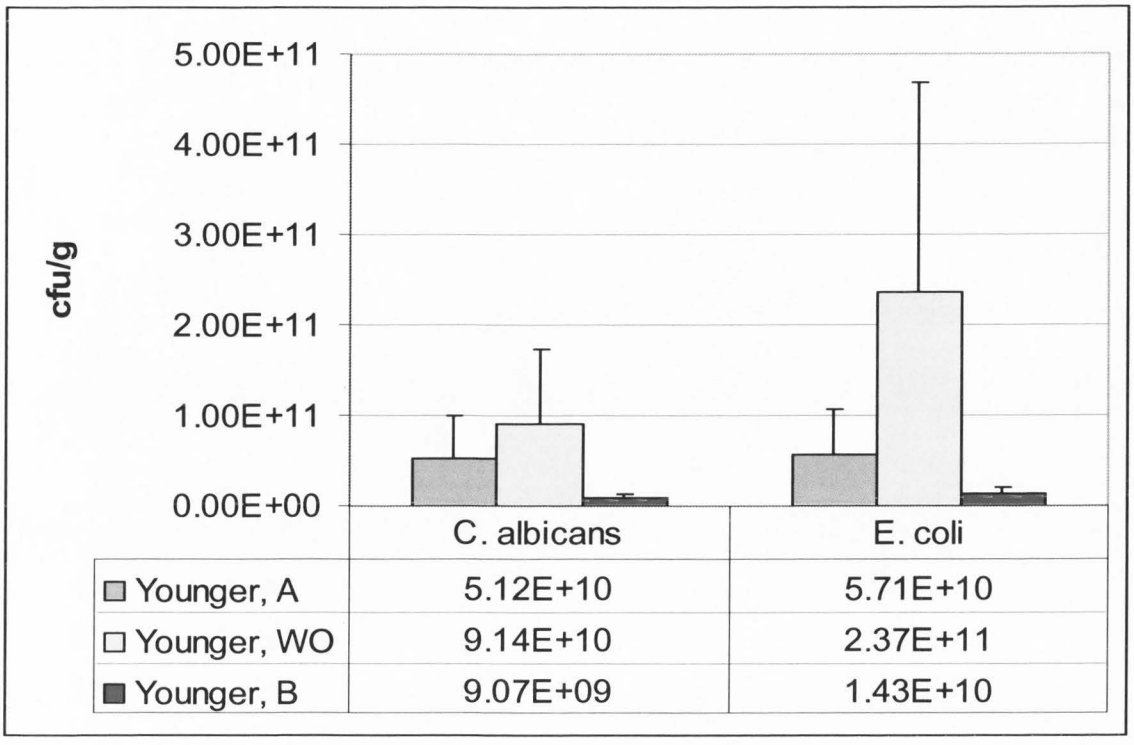


	Lactobacilli	Bifidobacilli
Older, A	1.76E+10	7.74E+10
Older, WO	3.10E+10	1.56E+11
Older, B	8.53E+10	4.02E+11

Figure 20. Fecal Lactobacilli and Bifidobacteria Counts of Older Age Group by Treatment (Mean ± SEM).

Younger subjects

The younger group's bacterial counts by treatment differed from those of the older group. At washout, *Candida albicans* counts were 9.14E+10 ± 8.17E+10 cfu/g and *Escherichia coli* counts were 2.37E+11 ± 2.30E+11 cfu/g. Treatment A then decreased *Candida albicans* counts to 5.12E+10 ± 4.82E+10 cfu/g, and also decreased *Escherichia coli* counts to 5.71E+10 ± 5.03E+10 cfu/g (Figure 21). Treatment B also decreased *Candida albicans* counts to 9.07E+09 ± 3.81E+09 and *Escherichia coli* counts to 1.43E+10 ± 5.71E+09 cfu/g. Therefore in the younger gut, both treatments provided a beneficial effect.



	C. albicans	E. coli
Younger, A	5.12E+10	5.71E+10
Younger, WO	9.14E+10	2.37E+11
Younger, B	9.07E+09	1.43E+10

Figure 21. Fecal *C. albicans* and *E. coli* Counts of Younger Age Group by Treatment (Mean ± SEM).

As for the beneficial bacteria, washout counts were 6.63E+08 ± 4.18E+08 cfu/g for Lactobacilli, and 3.52E+09 ± 2.34E+09 cfu/g for Bifidobacteria. Treatment A had the same effect on Lactobacilli as it did in the older group, lowering the count to 2.24E+08 ± 1.71E+08 cfu/g (Figure 22). It did not have the same effect as seen in the older group on Bifidobacteria. Treatment A did possibly increase the younger group's Bifidobacteria count 1.72E+10 ± 1.63E+10cfu/g. As for on treatment B, Lactobacilli dropped to 2.24E+08 ± 2.05E+08 cfu/g (Figure 22), while Bifidobacteria rose to 7.50E+10 ± 5.57E+10 cfu/g (Figure 23).

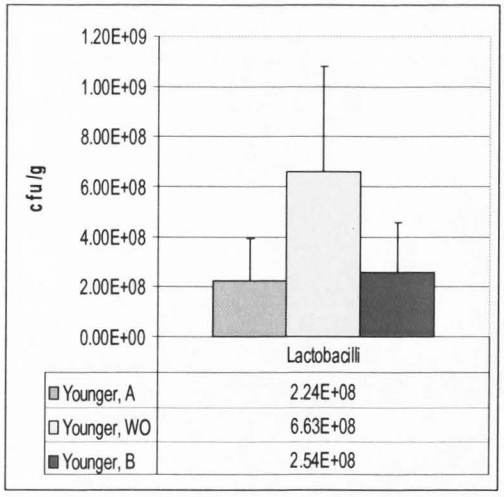


Figure 22. Fecal Lactobacilli Counts of Younger Age Group by Treatment (Mean ± SEM).

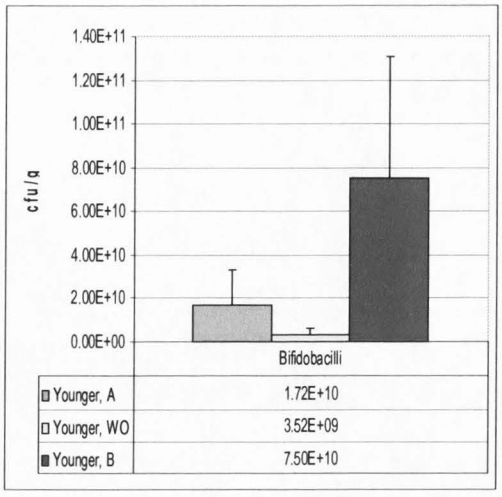


Figure 23. Fecal Bifidobacteria Counts of Younger Age Group by Treatment (Mean ± SEM).

Combined age group values

As both age groups showed a decline in *Candida albicans* when taking treatment B, combining results showed decreased *Candida albicans* counts to 6.62E+10 ± 2.71E+10 cfu/g, from 1.46E+11 ± 8.39E+10 cfu/g at washout (Figure 24). Treatment A had a consistent effect of decreasing *Escherichia coli* counts (6.25E+10 ± 3.10E+10 cfu/g) from washout (1.67E+11 ± 1.24E+11 cfu/g) (Figure 25).

As mentioned Lactobacilli and Bifidobacilli are two common types of beneficial bacteria found in the gut. They are often bacterial targets to be enhanced when using prebiotics. A number of health-promoting properties are associated with Lactobacilli and Bifidobacilli including a decrease in deleterious bacteria, production of vitamins (particularly of the B Group) and the production of certain immunomodulators that may promote immunological attack against malignant cells (International Scientific Association for Probiotics and Prebiotics, 2004).

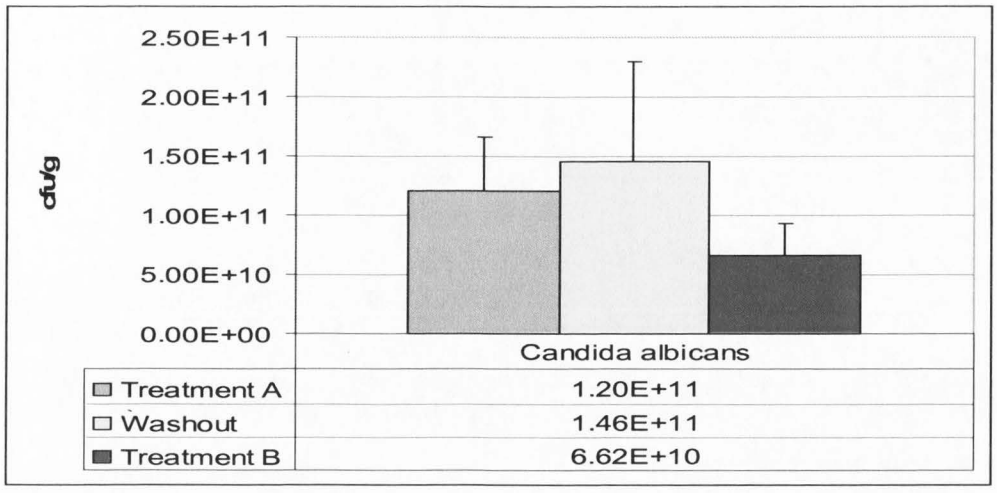


Figure 24. Fecal *C. albicans* Counts of Combined Age Groups by Treatment (Mean ± SEM).

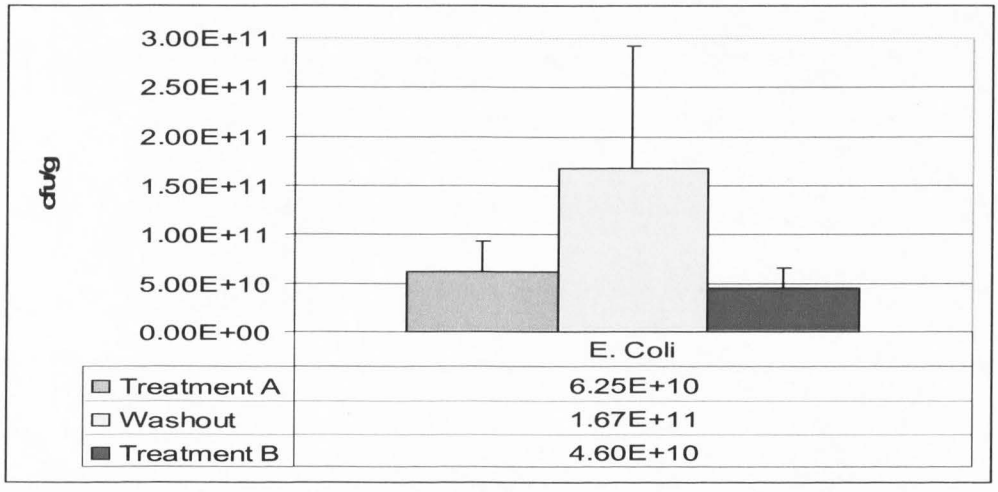


Figure 25. Fecal *E. coli* Counts of Combined Age Groups by Treatment (Mean ± SEM).

When taking treatment A, Lactobacilli (7.04E+09 ± 4.87E+09 cfu/g) and Bifidobacteria (3.80E+10 ± 12.01+10 cfu/g) counts decreased from washout values (1.49E+10 ± 1.20E+10 and 7.50E+10 ± 7.08E+10 cfu/g, respectively). Treatment B, however, nearly doubled both Lactobacilli and Bifidobacteria counts (3.54E+10 ± 2.36E+10 and 2.10E+11 ± 1.16E+11 cfu/g respectively) compared to washout values (Figure 26, 27).

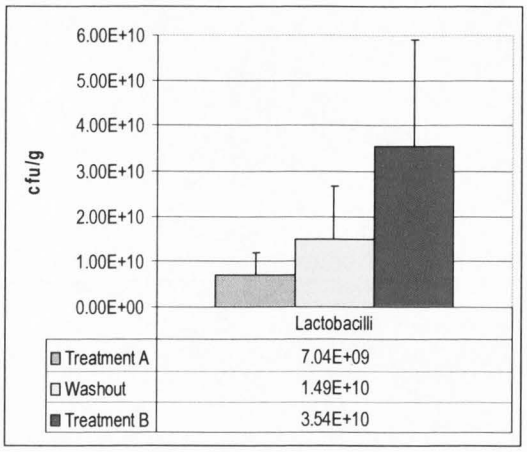


Figure 26. Fecal Lactobacilli Counts of Combined Age Groups by Treatment (Mean ± SEM).

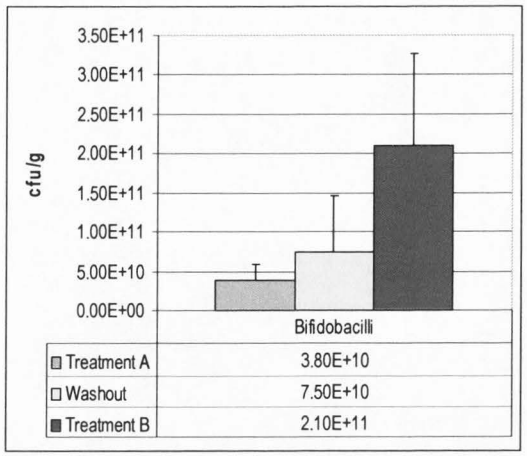


Figure 27. Fecal Bifidobacteria Counts of Combined Age Groups by Treatment (Mean ± SEM).

Symptom Diaries

Consumer perception and acceptance of a product, is of great importance when looking at functional foods. As most sugar replacements and fibers have a negative connotation regarding digestive problems, it was important to track this. When participants were asked to rate the quality of their bowel movements on a hedonic scale (5 = watery; 0 = regular; -5 = pebbles), we found a difference among age groups and treatments. Flatulence seemed to be the biggest response to differ between the treatments. Increased flatulence was also the biggest complaint made by participants. One participant in fact withdrew as he determined that the increase of gas was not conducive to his professional work. Again, participants recorded on a subjective scale (5 = severe gas, bloating, discomfort; 0 = same or less "than normal"), their flatulence on each treatment.

Older subjects

The older group reported that on average, their washout stool quality was a 0.6 ± 0.53 on a 5 point scale. When taking treatment A, their stools tended to be slightly more firm at 0.4 ± 0.19 and more regular. Treatment B-induced results were even more so, declining to a 0.1 ± 0.12 or basically what participants would determine as no change from normal (Figure 28).

A large difference in flatulence was noted. During washout, the older group had an average value of 0.4 ± 0.12. When taking treatment A, this rose to a 0.6 ± 0.16. Treatment B caused the most noticeable difference. On treatment B, participants claimed an increase to 1.5 ± 0.27 ($p<0.05$), more than a three fold increase from the washout period (Figure 29).

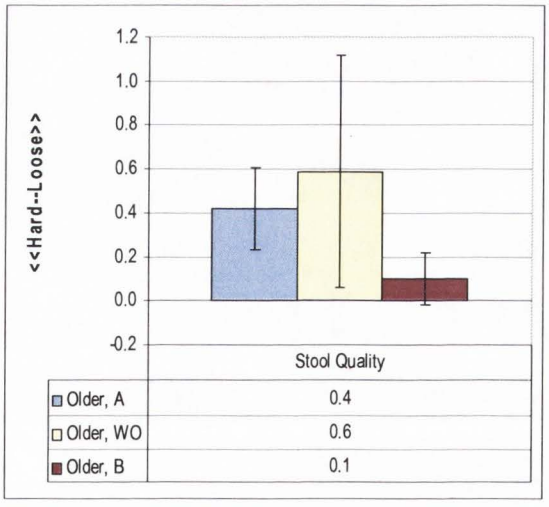


Figure 28. Older Age Group's Stool Quality by Treatment (Mean ± SEM).

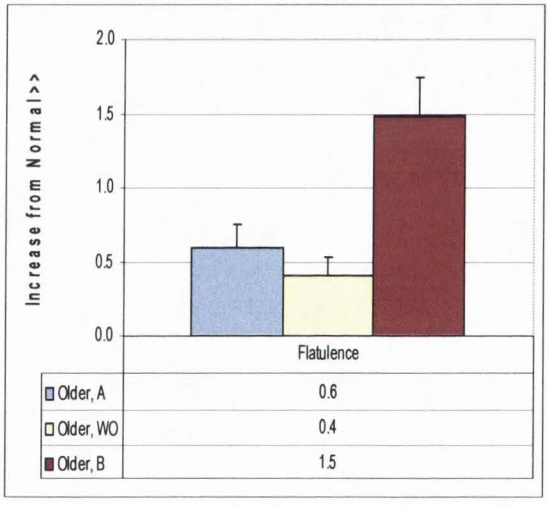


Figure 29. Older Age's Group's Flatulence by Treatment (Mean ± SEM).

Younger subjects

The younger group experienced an opposite effect on stool quality than what the

older participants noticed. At washout, the younger group reported an average stool quality of 0.2 ± 0.09, or slightly more loose than what they determined as normal. With treatment A, stool quality remained the same 0.2 ± 0.16 as washout. With treatment B, their stools became even looser at a 0.5 ± 0.15 (Figure 30). Each treatment had the same effect on flatulence as they did with the older group. Washout values were 0.4 ± 0.11. On treatment A, flatulence increased to a 0.6 ± 0.13, but with treatment B it went to a 1.2 ± 0.18 ($p<0.05$) (again a 3 fold increase; Figure 31).

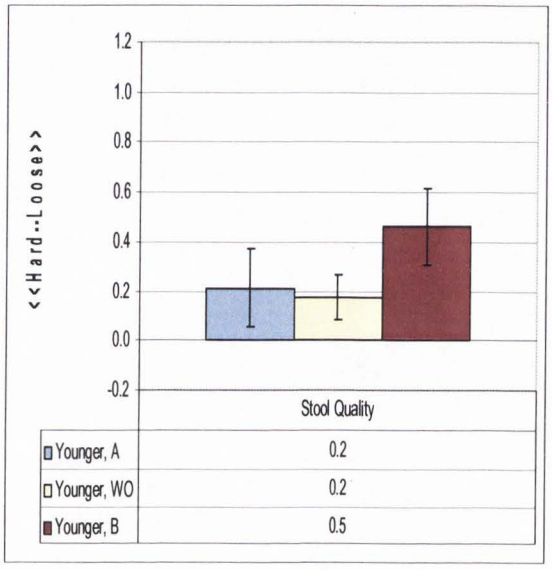


Figure 30. Younger Age Group's Stool Quality by Treatment (Mean ± SEM).

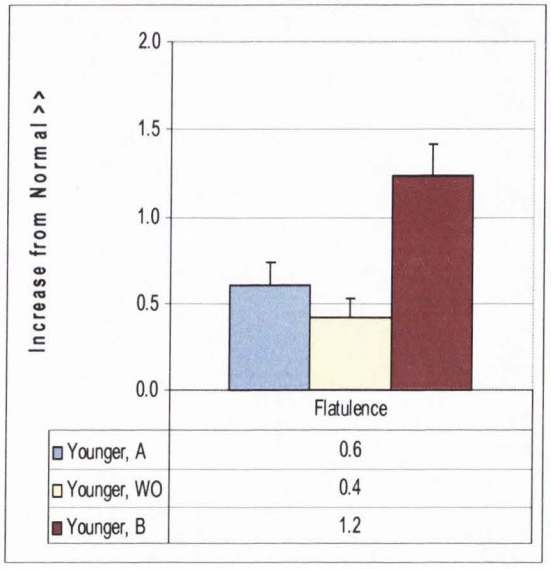


Figure 31. Younger Age Group's Flatulence by Treatment (Mean ± SEM).

Combined

As both age groups noticed the same effects on flatulence, the combined results were an average of 0.4 ± 0.08 at washout. Treatment A increased flatulence to 0.6 ± 0.10, but it was treatment B that induced a significant elevation of flatulence with an average of 1.35 ± 0.16 ($p<0.05$) compared to the washout period (Figure 32).

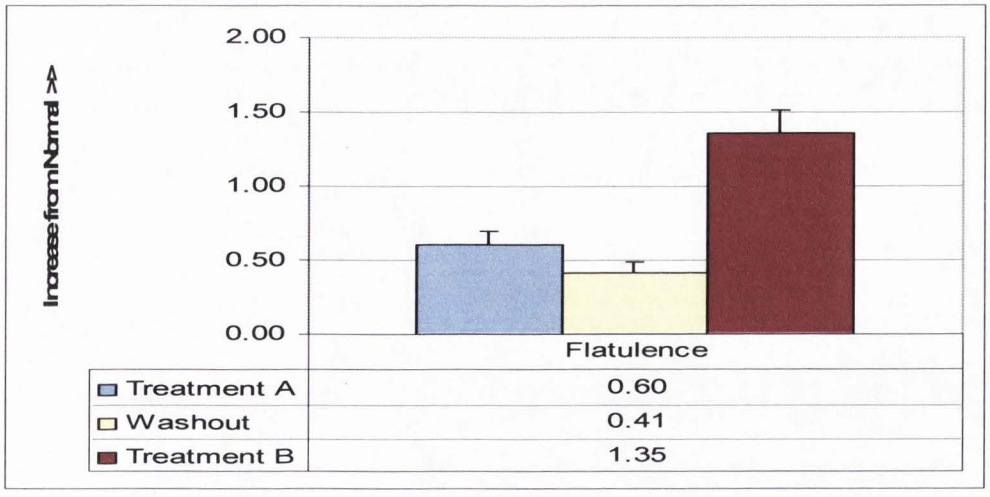


Figure 32. Combined Age Group's Flatulence by Treatment (Mean ± SEM).

Summary

According to the Centers for Disease Control and Prevention 2002 data, four of the top six causes of death in the United States may be related to diet. These leading killers are heart disease (696,947 deaths), cancer (557,271 deaths), stroke (162,672 deaths), and diabetes (73,249 deaths; Centers for Disease Control and Prevention, 2004). Risk factors for heart disease, cancer, and stroke, include increased age, high blood cholesterol and triglycerides, and diabetes mellitus. Diabetes mellitus risk factors include increased age, overweight, impaired glucose tolerance, and cardiovascular disease among others. Additional risk factors for cancer, specifically colorectal, include low fecal weight and an alkaline colonic environment. In attempts to prevent and fight these lethal medical conditions, people are beginning to look to foods, specifically functional foods (National Institutes of Health, 2004).

DeBusk (1998) has stated that the underlying impetus for development of functional foods is the concept of "food as medicine," a philosophy that dates back to

Hippocrates. The Nutrition Business Journal (NBJ), San Diego, CA, estimated U.S. sales of functional foods exceeded $18.2 billion in 2001, growing at over 8%. Functional foods represent about 3.5 % of the total U.S. food market, while functional beverages represent another $7 billion and growth rates are upwards of 12 % (DeBusk, 1998).

Prebiotics, a subset of functional foods, are studied for their ability to enhance health in a number of ways, through the support of probiotic bacteria in the gut. The probiotic bacteria, principally Bifidobacteria and Lactobacilli, exert various beneficial effects on health, both through their direct interactions with the gut, and in their metabolic products (Douglas, 2004).

To review, a functional food or "a food ingredient (nutrient or not) which affects one or a limited number of physiological function(s) in the body in a targeted way so as to provide positive effects which may, in due course, justify health claims; or, provides a physiological or psychological effect beyond the traditional nutritional effect" (Roberfroid, 1999, p. 1398s). must have scientific research to meet the following:

> 1. Identify the interaction(s) between the food ingredient and the genomic, biochemical, cellular, or physiological function(s) in the body.
> 2. Demonstrate the functional effect(s) in relevant experimental and human models.
> 3. Investigate, in humans, the consequence(s) of the functional effect(s), including effect(s) on relevant biomarkers and possible health benefits. (Cummings et al., 2001 p. 416s)

For a functional food ingredient to be classified as a prebiotic, it must meet the following:

> 1. Not be hydrolyzed or absorbed in the upper part of the gastrointestinal (GI) tract; in other words, any food ingredient that enters the large intestine.
> 2. Be a selective substrate for one or a limited number of potentially beneficial bacteria common to the colon.
> 3. Be able to, as a consequence in selecting certain bacteria, alter the colonic microflora toward a potentially more healthy composition and/or activity (Roberfroid et al., 1998 p. 117).

Treatment A, 7.5 g of xylitol, had several benefits that would suggest its usefulness as a functional food. Regardless of age, xylitol was associated with changes in bowel movements. There was an increased number of daily stools and decreased fecal pH while taking xylitol alone. As for blood parameters, post-meal blood glucose levels declined, HDL values rose, and triglyceride and VLDL levels dropped. As for a prebiotic effect, xylitol decreased *Escherichia coli* counts. As for possible negative effects linked to xylitol, it did decrease stool mass as well as Lactobacilli, and it caused a slight increase in flatulence.

There were also differences in responses to treatments by age group. In the older group, xylitol caused a decrease in percent moisture of stool compared to the washout; while the added inulin increased the percent moisture from that at the washout. In the younger group however, neither treatment changed the percent moisture of their stools. When evaluating at blood triglyceride levels, both treatments caused a decline compared to washout in the older population. In the younger group, the added inulin did not cause a decrease, but an increase instead. As for fecal microbe counts, there were differences by age as well. The xylitol treatment tended to cause a decrease in *C. albicans* from washout in the younger group, but no real change in the older participants. This same decrease for the younger, but not the older subjects was seen in *E. coli*, when taking the treatment with added inulin. As for the "health promoting" bacteria, Lactobacilli counts rose with the added inulin, compared to washout, for the older group. The opposite was seen in the younger group.

For treatment B, 7.5 g of inulin added to the 7.5 g of xylitol, there were benefits

as well. The decrease in stool mass experienced with xylitol alone was reversed, fecal pH was still decreased, and daily number of stools was also still increased. As for the blood parameters, pre-meal blood glucose was unchanged by the added inulin, while post-meal concentrations declined. Less fluctuation in blood glucose from before to after treatment provided a control of blood glucose that is beneficial in avoiding diabetes and its related problems.

The HDL and VLDL levels improved with treatment B as they did with xylitol alone, but with treatment B *Candida albicans* were down. In addition Bifidobacteria growth may have increased providing a benefit to the health of the GI tract. Probiotic bacteria and their products diminish the growth and activity of less beneficial microbes, including putrefactive and disease-causing bacteria and yeast. The beneficial bacteria crowd out (tropism) the unwanted or less beneficial species. In addition, there is limited food and space in the colon, so the provision of a food source that is preferred by the beneficial bacteria helps ensure they will have the competitive advantage (Douglas, 2004). A negative aspect of adding inulin, was increased total cholesterol and LDL values. But most noticeably, it increased flatulence by three-fold.

Differences among age groups were noticed as well. In the older group, treatment B decreased triglyceride levels as with xylitol alone, and stools tended to be firmer. Also, Lactobacilli counts were up, but so were *E. coli counts.* In the younger group, stools were also looser and serum triglyceride levels were increased.

CONCLUSION

The use of 7.5 g of xylitol by itself can be of benefit and may be used as a functional food. It aids in increasing bowel movements while decreasing fecal pH. It decreases post-meal blood glucose levels. As for the heart, it is beneficial in reducing triglyceride, VLDLs, while raising HDLs thus lowering total cholesterol: HDL ratios levels. It is also apparently indigestible to bacteria as well, as in this study it decreased all that were measured. As for its downfalls, it decreases stool mass and increases flatulence. All this considered, it does appear to be more influential in an older population. Adding an additional 7.5 g of inulin not only reverses the decrease in stool mass caused by the xylitol, but it also brings an increase in LDL levels and a marked increase in flatulence. There are also differences in responses by age (Table 15 and 16).

Table 15. Summary of Physical Responses to Treatments by Age Group
*Denotes significance of $p<0.05$ in change from washout

	Older on A		Older on B		Younger on A		Younger on B	
	PRO	**CON**	**PRO**	**CON**	**PRO**	**CON**	**PRO**	**CON**
Stool Mass		↓	↑			↓	-	
% Moisture		↓	↑		-		-	
B. Movements	↑		↑		↑*		↑	
Fecal pH	↓*		↓*		↓		↓	
Pre-meal BG	↓*		-		-		-	
Post-meal BG	↓		↓		↓		↓	
Change in BG	↑		↓		↓		-	
Total Cholesterol	↓			↑	-		-	
Triglycerides	↓*		↓*		↓			↑
HDL	↑		↑		↑		-	
VLDL	↓*		↓*		↓		↓	
LDL	↓			↑		↑		↑
Chol: HDL	↓*		↓*		↓			↑
C. albicans	-		↓		↓		↓	
E. coli	↓			↑	↓		↓	
Lactobacilli	↓		↑			↓		↓
Bifidobacteria	↓		↑			↓		↓
Stool Quality	firm		firm			loose		loose
Flatulence		↑		↑*		↑		↑*

Table 16. Summary of Dietary Responses to Treatments by Age Group
*Denotes significance of $p<0.05$ in change from washout

	Older on A		Older on B		Younger on A		Younger on B	
	PRO	**CON**	**PRO**	**CON**	**PRO**	**CON**	**PRO**	**CON**
Calories	↓		↓		↓		↓	
Protein	↑			↓	↑		↑	
Carbohydrates	↓		↓		↓		↓	
Total Fat		↑		↑	↓		↓	
Sat. Fat		↑	↓		↓			↑
MUFA	↑		↑		↑		↑	
PUFA	↑		↑		-		-	
Water		↓		↓	↑			↓
Fiber	↑*		↑*		↑			↓
Dietary Cholesterol	↑		↓		↓		↓	

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APPENDICES

APPENDIX A

Recruiting Flyers

Utah State UNIVERSITY

Utah State UNIVERSITY

Volunteers Needed
for
Non-metabolized Sweetener Study

USU's nutrition department is conducting a study on a plant-based sweetener called xylitol, in comparison to another non-metabolized natural sweetener. Xylitol has possibilities of being used as a sugar substitute with little effects on blood sugar concentrations. The aim of this study is to evaluate the effects of xylitol on blood sugar levels, as well as its effects on gastrointestinal function and microbes.

We are looking for healthy individuals of college age (18-27) and older (45-75) who do not have a history of gastrointestinal problems, urinary tract infections, or yeast infections. The study will take seven weeks.

Participants will receive an $80 compensation,
As well as results of 4 blood tests on blood lipid levels and blood glucose monitoring

Contact:
Matt Leonhardt
435-881-5041
mattal@cc.usu.edu

Contact:
Matt Leonhardt
435-881-5041

APPENDIX B

Participant Schedule and Instructions

INSTRUCTIONS TO PARTICIPANTS (Starting with A):

Week 1:

Monday: Collect all stools for the day in the container labeled "Initial stool".

Tuesday: **7:00 AM** Return with stool samples, and signed consent form to the NFS Conference Room. Come fasting (12 hours), to have 7 cc of blood drawn and taken to Logan Regional Hospital for analysis. The procedures will be reviewed once more, and materials will be provided for the next seven days (symptom diary, 24 hour food recalls, powder sachets labeled with the day they are to be taken, containers for stool collection, and glucometers).

Fill out the first symptom diary before bed.

Wednesday: Eat a normal diet while taking the A1 powder sachet. The sachet is to be taken in the morning with your regular breakfast. Again, fill out the symptom diary each night before retiring.

Thursday: Take the A2 sachet with breakfast, and fill out the symptom diary before retiring.

Friday: Take the A3 sachet with breakfast, and fill out the symptom diary before retiring.

Saturday: Take the A4 sachet with breakfast, and fill out the symptom diary before retiring.

Week 2:

Sunday: Take the A5 sachet with breakfast, and fill out the symptom diary before retiring.

Monday: Take the A6 sachet with breakfast, and fill out the symptom diary before retiring.

Tuesday: Take the A7 sachet with breakfast

Return the "Week1" diaries to NFS 305 and receive the next seven day's materials (sachets, diaries, Glucometers, and stool containers).

Wednesday: Take the A8 sachet with breakfast, and fill out the symptom diary before retiring.

Thursday: Take the A9 sachet with breakfast, and fill out the symptom diary before retiring.

Friday: Take the A10 sachet with breakfast, and fill out the symptom diary before retiring.

Saturday: Take the A11 sachet with breakfast, and fill out the symptom diary before retiring.

Week 3:

Sunday: Collect the day's stool from every bowel movement in the "Treatment A (day 1)" labeled container. Take and record your blood glucose level before breakfast. Take sachet A12 with your normal breakfast. One hour after breakfast take and record your blood glucose reading again. Before retiring fill out your symptom diary as well as your 24 hour food recall.

Monday: Same procedure as Sunday, as well as return Sunday's stools and 24

hour food recall to NFS 305.

Collect the day's stool from every bowel movement in the "Treatment A (day 2)" labeled container. Take and record your blood glucose level before breakfast. Take sachet A13 with your normal breakfast. One hour after breakfast take and record your blood glucose reading again. Before retiring fill out your symptom diary as well as your 24 hour food recall.

Tuesday: Same procedure as Monday, as well as return Monday's stools and 24 hour food recall to NFS 305.

Collect the day's stool from every bowel movement in the "Treatment A (day 3)" labeled container. Take and record your blood glucose level before breakfast. Take sachet A14 with your normal breakfast. One hour after breakfast take and record your blood glucose reading again. Before retiring fill out your symptom diary as well as your 24 hour food recall. Don't eat after going to bed

Wednesday: Don't eat in the morning. **7:00 am** Start washout period (14 days) by coming (fasting for 12 hours) to the NFS Conference room for a 7cc draw of blood. Bring Tuesday's stools, 24 hour food recall, and the "Week 2" symptom diaries. No sachets will be taken for the next 13 days, but continue to eat a normal diet and fill out symptom diaries each night before retiring.

Thursday: Eat a normal breakfast, and fill out symptom diary before retiring.

Friday: Eat a normal breakfast, and fill out symptom diary before retiring.

Saturday: Eat a normal breakfast, and fill out symptom diary before retiring

Week 4:

Sunday: Eat a normal breakfast, and fill out symptom diary before retiring

Monday: Eat a normal breakfast, and fill out symptom diary before retiring

Tuesday: Eat a normal breakfast, and fill out symptom diary before retiring

Wednesday: Eat a normal breakfast, and fill out symptom diary before retiring. Bring the "Week 3" symptom diaries to NFS room 305 and receive the next week's diaries, buckets, and glucometers.

Thursday: Continue eating a normal diet and filling out symptom diary before retiring.

Friday: Eat a normal breakfast, and fill out symptom diary before retiring

Saturday: Eat a normal breakfast, and fill out symptom diary before retiring.

Week 5:

Sunday: Collect the day's stools in the "Washout (day 1)" labeled container. Take and record blood glucose levels before breakfast, as well as one hour after. Again a 24 hr food record is to be filled out as well as the symptom diary before retiring.

Monday: Same at Sunday, also bring Sunday's stool sample to NFS 305. Collect the day's stools in the "Washout (day 2)" labeled container. Take and record blood glucose levels before breakfast, as well as one hour after. Again a 24 hr food record is to be filled out as well as the symptom diary before retiring.

Tuesday: Same as Monday, also bring Monday's stool samples to NFS 305. Collect the day's stools in the "Washout (day 3)" labeled container. Take and record blood glucose levels before breakfast, as well as one hour after. Again a 24 hr food record is to be filled out as well as the symptom diary before retiring. Don't eat after retiring.

Wednesday: **7:00 am** Don't eat, come fasting (12hrs) for another 7cc blood draw at the NFS Conference Room. Bring "Week 4" symptom diaries, Tuesday's stools, Glucometers, and the 24 hour food recall. Sachets and materials will be provided for the next seven days. Take B1 sachet with first regular meal after the test. Fill out the symptom diary before retiring.

Thursday: Take the B2 sachet with breakfast, and fill out the symptom diary before retiring.

Friday: Take the B3 sachet with breakfast, and fill out the symptom diary before retiring.

Saturday: Take the B4 sachet with breakfast, and fill out the symptom diary before retiring.

Week 6:

Sunday: Take the B5 sachet with breakfast, and fill out the symptom diary before retiring.

Monday: Take the B6 sachet with breakfast, and fill out the symptom diary before retiring.

Tuesday: Take the B7 sachet with breakfast
Return the "Week 5" diaries to NFS 305 and receive the next seven day's materials (sachets, diaries, Glucometers, and stool containers).

Wednesday: Take the B8 sachet with breakfast, and fill out the symptom diary before retiring.

Thursday: Take the B9 sachet with breakfast, and fill out the symptom diary before retiring.

Friday: Take the B10 sachet with breakfast, and fill out the symptom diary before retiring.

Saturday: Take the B11 sachet with breakfast, and fill out the symptom diary before retiring.

Week 7:

Sunday: Collect the day's stool from every bowel movement in the "Treatment B (day 1)" labeled container. Take and record your blood glucose level before breakfast. Take sachet B12 with your normal breakfast. One hour after breakfast take and record your blood glucose reading again. Before retiring fill out your symptom diary as well as your 24 hour food recall.

Monday: Same procedure as Sunday, as well as return Sunday's stools and 24 hour food recall to NFS 305.
Collect the day's stool from every bowel movement in the "Treatment B (day 2)" labeled container. Take and record your blood glucose level before breakfast. Take sachet B13 with your normal breakfast. One hour

after breakfast take and record your blood glucose reading again. Before retiring fill out your symptom diary as well as your 24 hour food recall.

Tuesday: Same procedure as Monday, as well as return Monday's stools and 24 hour food recall to NFS 305.

Collect the day's stool from every bowel movement in the "Treatment B (day 3)" labeled container. Take and record your blood glucose level before breakfast. Take sachet B14 with your normal breakfast. One hour after breakfast take and record your blood glucose reading again. Before retiring fill out your symptom diary as well as your 24 hour food recall. Don't eat after going to bed

Wednesday: Don't eat in the morning. **7:00 am** Come fasting for 12 hours to the NFS Conference room for a 7cc draw of blood. Bring Tuesday's stools, 24 hour food recall, Glucometers, and the "Week 6" symptom diaries. Return all supplies and pick up your $80. Thank you for participating.

Researchers may be contacted at any time at 797-2124 or 881-5041.

APPENDIX C

General Background Questionnaire

Non-metabolized Sweetener Study
General Background Questionnaire

Name _____ Age _____ Race _____
Sex M F Height _____ Weight_____

1. What is your occupation?
_____Professional or technical work, owner, or manager
_____Sales or service work
_____Production work or manual labor
_____Farming, fishing, or forestry
_____Armed Services
_____Homemaker
_____Student
_____Retired
_____Other, Please
specify_____

2. Describe your level of physical activity on that job.
_____Mostly sitting
_____Light physical work
_____Between light and heavy physical work
_____Heavy physical work

3. Describe your daily activity level.
_____Not active
_____Slightly active
_____Moderately active
_____Highly active

4. Describe your daily stress level.
_____No stress
_____Slightly stressed
_____Moderately stressed
_____Highly stressed

5. Describe your overall health.
_____Excellent
_____Very Good
_____Good
_____Fair
_____Poor
_____Don't know

6. Have you ever been diagnosed with any of the following:

A. Chronic Obstructive Pulmonary Disease (Emphysema): NO (go to B)
YES

If yes, did you receive medical treatment or medication: NO YES
If yes, what medications and are you still taking them: NO YES

B. Arthritis: NO (go to C)
YES

If yes, did you receive medical treatment or medication: NO YES
If yes, what medications and are you still taking them: NO YES

C. Diabetes: NO (go to D)
YES

If yes, did you receive medical treatment or medication: NO YES
If yes, what medications and are you still taking them: NO YES

D: Asthma: NO (go to E)
YES

If yes, did you receive medical treatment or medication: NO YES
If yes, what medications and are you still taking them: NO YES

E. High Blood Pressure or Hypertension: NO (go to F)
YES

If yes, did you receive medical treatment or medication: NO YES
If yes, what medications and are you still taking them: NO YES

F. Stroke: NO (go to G)
YES

If yes, did you receive medical treatment or medication: NO YES
If yes, what medications and are you still taking them: NO YES

G. Heart attack: NO (go to H)
YES

If yes, did you receive medical treatment or medication: NO YES
If yes, what medications and are you still taking them: NO YES

H. Cancer: NO (go to I)
YES

If yes, did you receive medical treatment or medication: NO YES
If yes, what medications and are you still taking them: NO YES

I. Kidney Disease or Failure : NO (go to J)
YES

If yes, did you receive medical treatment or medication: NO YES
If yes, what medications and are you still taking them: NO YES

J. Ulcers: NO (go to K)
YES

If yes, did you receive medical treatment or medication: NO YES
If yes, what medications and are you still taking them: NO YES

K. Gallbladder problems: NO (go to L)
YES

If yes, did you receive medical treatment or medication: NO YES
If yes, what medications and are you still taking them: NO YES

L. Dehydration: NO (go to M)
YES

If yes, did you receive medical treatment or medication: NO YES
If yes, what medications and are you still taking them: NO YES

M. Anemia: NO (go to N)
YES

If yes, did you receive medical treatment or medication: NO YES
If yes, what medications and are you still taking them: NO YES

_____

N. Heart Disease (Atherosclerosis) or CVD: NO (go to O)
YES

If yes, did you receive medical treatment or medication: NO YES
If yes, what medications and are you still taking them: NO YES

_____

O. Thyroid disease or goiter: NO (go to P)
YES

If yes, did you receive medical treatment or medication: NO YES
If yes, what medications and are you still taking them: NO YES

_____

P. Allergies: NO (go to Q)
YES

If yes, what kind of allergy:_____
If yes, did you receive medical treatment or medication: NO YES
If yes, what medications and are you still taking them: NO YES

_____

Q. Migraine Headaches: NO (go to 7)
YES

If yes, did you receive medical treatment or medication: NO YES
If yes, what medications and are you still taking them: NO YES

_____

7. Please describe any other medications you are taking at this time. (Including: diuretics, pain medication,

_____

_____

_____

8. Have you taken any of the follow medications in the past two weeks:

A. Stomach medication: (e.g. Xantac, Maalox, Tagamet, PepcidAC, etc.)

NO (go to B)
YES

If yes, What was the medication? _____
What was the dose?_____

B. Tums: NO (go to C)
YES

If yes, What was the medication? _____
What was the dose?_____

C. Rolaids: NO (go to C)
YES

If yes, What was the medication? _____
What was the dose?_____

D. List any other medications taken for gastrointestinal discomfort or problems:
_____

9. (Women only) Have you ever been diagnosed with a yeast infection? NO (go to 10)
YES

If yes, How long ago, and what medication did you take? _____
_____
_____

10. Are you currently taking any food supplements:

A. Multi-vitamin: NO (go to B)
YES

If Yes, What kind is it (brand name)?_____
What doses?_____

B. Mineral: NO (go to C)
YES

If Yes, What kind is it (brand name)?_____
What doses?_____

C. Single Vitamins: NO (go to D)
YES

If Yes, Please list with
doses:_____

D. Single mineral: NO (go to E)
YES

If Yes, Please list with doses:_____

E. Fiber supplements:NO (go to F)
YES

If Yes, what kind (brand name)?_____

What doses?_____

F. Herbs or herbal supplements: NO (go to G)
YES

If Yes, Please list with doses:_____

G. Do you take any other supplements not listed? NO (go to 11)
YES

If Yes, Please list with doses:_____

H. Have you taken any antibiotics in the past three months? NO (go to 11)
YES

If Yes, Please list with doses:_____

11. In your lifetime, have you ever smoked cigarettes, cigars, a pipe, chewed tobacco, or dipped snuff? NO (go to 12)
YES

If yes, How long have you been using tobacco?_____

Do you still use tobacco, and if so how many times per day?
NO (go to 12)
YES,_____

12. In your lifetime, have you ever had a can of beer, glass of wine, or a shot of liquor or a mixed drink? NO (go to 13) YES

If yes, do you still? NO (go to 13) YES

If yes, How many drinks a week to you have:_____

(1 drink= 1 can or 12 oz beer, 1 glass or 4 oz wine, or 1 shot of hard liquor)

13. How much water (not including coffee, tea, kool-aid, etc) do you drink each day (24hrs).

_____ cups.

APPENDIX D

Symptom Diaries

SYMPTOM DIARY

Subject # _____ *Group 1* ***(B) PRODUCT TAKEN***

Week _____ Dates: _____

1. Place an "X" in the square that describes your daily symptoms using product B as compared with your usual **bowel movements** (BM's).

	T	W	R	F	S	S	M
Diarrhea							
5 = severe diarrhea							
4 = somewhat severe							
3 = more diarrhea							
2 = mildly more							
1 = very little more diarrhea							
0 = the same							
1 = very little more constipation							
2 = mildly more							
3 = more constipation							
4 = somewhat severe							
5 = severe constipation							
Constipation							

B. Describe **quality** of **bowel movements (BM's)** with product B**:**

	T	W	R	F	S	S	M
Quality of BM's							
5 = watery							
3 = loose							
1 = softer							
0 = regular							
- 1 = firmer							
- 3 = hard							
- 5 = pebbles							
Quantity: Number of BM's							
Irregularity: days since last BM							

C. Number of **bowel movements** per day with product B:

	T	W	R	F	S	S	M
Compared to your usual, this is							
5 = five (5) or more							
4 = four (4) more							
3 = three (3) more							
2 = two (2) more							
1 = one (1) more							
0 = same							
-1 = one (1) fewer							
-2 = two (2) fewer							
-3 = three (3) fewer							
-4 = four (4) fewer							
- 5 = five (5) or more fewer							

D. Flatulence with product B:

	T	W	R	F	S	S	M
Flatulence							
5 = severe gas, bloating,							
4 = somewhat severe							
3 = more gas							
2 = mildly more							
1 = very little more gas							
0 = same or less							

APPENDIX E

Written Consent

Utah State
UNIVERSITY

DEPARTMENT OF NUTRITION AND FOOD SCIENCES
College of Agriculture
College of Family Life
Logan, UT 84322-8700
Telephone: (435) 797-2126
FAX: (435) 797-2379

Date Created: June 2, 2004

Subject #_____

Informed Consent

Non-metabolized sweetener study on health parameters in humans

Introduction: Deloy Hendricks, Professor in the Department of Nutrition and Food Sciences at Utah State University, and Matthew Leonhardt, Project Manager, are conducting research on a plant-based sweetener called xylitol, comparing it to another natural, non-digestible carbohydrate. Xylitol is carried and broken down in the liver without using insulin; therefore, it could be used as a sugar substitute with little effect on a person's blood sugar concentrations. Xylitol may also be used by bacteria in the gut to help lower levels of fats and cholesterol in the blood. The aim of this study is to evaluate the effects of xylitol on blood sugar levels, as well as its effects on GI function and the bacteria in the gut. There will be approximately 40 participants in this research to help us evaluate these effects of xylitol. The study will be funded by Barnard Silver of Silver Chief Corporation, 4390 South 2300 East Holladay, Ut 84124-3651.

Study Procedures: If you agree to be in this study, the following will happen to you over a seven-week period. You will be asked to:

- Fill out a background health questionnaire.
- Be measured for height and weight.
- Have four fasting blood tests of 7cc each performed by a certified phlebotomist.
- Attend an instructional meeting on how to perform each of the asked procedures.
- Take one sample sweetener packet with a normal breakfast for two weeks followed by two weeks without, and then 2 weeks with another treatment.
- Take your blood sugar levels twice a day on Sunday, Monday, and Tuesday following each cycle.
- Collect your bowel movements for those same three days of each cycle.
- Record your daily food intake and activity for those same three days of each cycle.
- Record your bowel movement frequency, consistency, firmness and flatulence for six weeks.
- Turn in your food diaries and stool collections at the end of each week.

New Findings: During the course of this study, you will be informed of any significant new findings (either good or bad), such as changes in the risks or benefits resulting from participation in the research, or new alternatives to participation that might cause you to change your mind about continuing the study. If new information is obtained that is relevant or useful to you, or if the procedures and/or methods change at any time throughout this study, your consent to continue participating in this study will be obtained again.

Risks: The only physical risk from participating in this study is that you may experience some mild to moderate gastrointestinal discomforts such as osmotic diarrhea and/or flatulence, but to minimize the risk of this side effect you are being instructed to take the sample with a normal meal. You may also experience some tenderness in the area you prick for your blood glucose reading. Since this is an experimental treatment, there may be some unknown minimal risks involved. Like all supplements, it is not regulated by the FDA.

USU IRB Approved

JUN 0 3 2004

Utah State UNIVERSITY

DEPARTMENT OF NUTRITION AND FOOD SCIENCES
College of Agriculture
College of Family Life
Logan, UT 84322-8700
Telephone: (435) 797-2126
FAX: (435) 797-2379

Subject #_____

Informed Consent

Non-metabolized sweetener study on health parameters in humans

Benefits: Benefits to you include free blood tests with results concerning your lipid, cholesterol, and blood sugar levels. The benefits to the investigator include information concerning the use of xylitol as a suitable sweetener substitute for those monitoring their blood sugar levels (i.e. diabetics), as well as its possibility as a prebiotic (benefiting your gut's healthy bacteria).

Explanation & offer to answer questions: Matt Leonhardt has explained this study to you and answered your questions. If you have other questions or research-related problems, you may call the Principal Investigator, Dr. Deloy Hendricks, at (435) 797-2124 or the Project Manager, Matt Leonhardt at (435) 881-5041.

Payment: You will be paid $80 at the end of the seven-week study for your participation. There is no cost to you; however, if you do withdraw from the study before completing the process, the $80 compensation will be void.

Voluntary Participation: Your participation in this study is entirely voluntary. You may refuse to participate or withdraw at anytime without consequence or loss of benefits. You may be withdrawn from the study without your consent by the investigator if procedures are not followed fully, or if any adverse side effects (i.e. watery diarrhea, flatulence) becomes constant or severe to where it interferes with normal living.

Confidentiality: All information gathered in this study will be kept strictly confidential. No information about you will be shared in any way with people who are not part of the research team, unless you give your written permission. Reports from our study will only include information on groups of people and no single person will be able to be identified. Our files will be secure because we will remove names from the files and identify them only with coded ID numbers, which will be kept separate from all other data, and destroyed after the study. All information will be securely stored at Utah State University indefinitely. The principal investigator, Dr. Deloy Hendricks, will keep the list of study participants and their coded ID numbers in his locked office at Utah State University. This will allow you to discuss your involvement in the study with Dr. Hendricks if you desire.

Institutional Review Board: The Institutional Review Board (IRB) for the protection of human participants at USU has reviewed and approved this research study. If you have questions regarding your rights as a research subject, or if problems arise which you do not feel you can discuss with the Principal Investigator or Project Manager, please contact the Utah State University Institutional Review Board Office at (435) 797-1821.

Utah State University

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Date Created: June 2, 2004

Subject #_____

Informed Consent

Non-metabolized sweetener study on health parameters in humans

Copy of consent: You have been given two copies of this Informed Consent. Please sign both copies and retain one copy for your files.

Investigator Statement: "I certify that the research study has been explained to the individual, by me or my research staff, and that the individual understands the nature and purpose, the possible risks and benefits associated with taking part in this research study. Any questions that have been raised have been answered."

Deloy Hendricks 6/3/04
Deloy Hendricks, Ph.D. Date
Principal Investigator
Dept. of Nutrition and Food Sciences
Utah State University
(435) 797-2124

Matt Leonhardt 6-3-04
Matt Leonhardt Date
Project Manager

(435) 881-5041

By signing below I agree to participate.

_____ _____
Participant's Signature Date

Address:

_____

_____

_____

(____)_____
Home Telephone

APPENDIX F

Statistics

STATISTICS:

The SAS System

The MEANS Procedure

Variable	N	Mean	Std Dev	Minimum
Treatment	864	2.0000000	0.8169695	1.0000000
Candida albicans	233	118198119427	543184236416	88500.00
Escherichia coli	213	88635511337	565744905532	0
Lactobacilli	225	21815297854	157879705329	0
Bifidobacilli	208	88252059738	548892169981	0
BG_before	283	97.8233216	11.5763218	35.0000000
BG_after	280	123.0714286	26.4463053	79.0000000
Total_Mass	278	138.3835971	115.3561921	0
Fecal pH	257	6.4812062	0.8260356	0
% moisture	751	0.7457257	0.1041267	0.5100000
Calories	96	1886.79	646.9728200	893.0000000
Water	96	2034.81	1014.23	269.0000000
Protein	96	74.2916667	28.5110936	25.0000000
Carbohydrates	96	252.9062500	91.7005514	98.0000000
Fiber	96	17.4802083	9.5595157	4.0000000
Total_fat	96	67.8333333	28.3391738	22.0000000
Sat_fat	96	24.1354167	14.1626787	8.0000000
Mono_fat	96	19.1354167	10.6203576	2.0000000
Poly_fat	96	9.4687500	5.7910150	2.0000000
Cholesterol	96	232.7812500	134.2673063	0
Cholesterol_total	95	175.0736842	43.0010495	105.0000000
Triglyceride	96	138.2083333	106.6865469	54.0000000
HDL_Cholesterol	96	48.2291667	11.6884821	24.0000000
VLDL_Cholesterol	91	23.4945055	11.5492892	11.0000000
LDL_Cholesterol	90	99.9666667	34.5385146	36.0000000
Chol : HDL ratio	96	3.7927083	1.3322908	0

APPENDIX G

Lab Results

DATA KEY

ID.....Participant Identification number
Level.....Order in which treatment was taken
Treatment.....Treatment
Age.....Age
Race.....Race
Sex.....Sex
Weight.....Weight
Height.....Height
BMI.....Body Mass Index
SD_Aaverage.....Average *C albicans* fecal count
MC_Aaverage.....Average *E coli* fecal count
RSA_average.....Average Lactobacilli fecal count
BA_average.....Average Bifidobacteria fecal count
BG_before_average.....Average blood glucose one hour before treatment
BG_after_average.....Average blood glucose one hour after treatment
Change_in_BG.....Change in blood glucose
Total_Mass_average.....Average of total stool mass
pH_average.....Average fecal pH
%_Moisture_average.....Average % moisture of stool
SDA.....*C albicans* fecal count by day
MCA.....*E coli* fecal count by day
RSA.....Lactobacilli fecal count by day
BA.....Bifidobacteria fecal count by day
BG_before.....Blood glucose one hour before treatment by day
BG_after.....Blood glucose one hour after treatment by day
Total_Mass.....Total stool mass by day
pH.....Fecal pH by day
%_Moisture.....% moisture of stool by day
Calories.....Daily calorie intake
Water.....Daily water intake
Protein.....Daily dietary protein intake
Carbohydrates.....Daily dietary carbohydrate intake
Fiber.....Daily dietary fiber intake
Total_fat.....Daily total dietary fat intake
Sat-fat.....Daily dietary saturated fat intake
Mono_fat.....Daily dietary monounsaturated fat intake
Poly_fat.....Daily dietary polyunsaturated fat intake
Cholesterol.....Daily dietary cholesterol intake
Cholesterol_total.....Total blood cholesterol
Triglyceride.....Blood Triglyceride
HDL_Cholesterol.....Blood HDL cholesterol
VLDL_Cholesterol.....Blood VLDL cholesterol
LDL_Cholesterol.....Blood LDL cholesterol

Total_Cholesterol:HDL ratio ..... Total blood cholesterol:HDL ratio
BM ..... Bowel movement
Quality ..... Quality of stool
Quantity ..... Quantity of stool
Number ..... Number of stools
Flatulence ..... Flatulence

ID	level	Treatment	Age	Race	Sex	Weight	Height	BMI	SDAaverage	MCAaverage	RSAaverage	BAaverage	ID
1001.00	1.00	1.00	45.00	1.00	2.00	72.70	1.70	25.20	1.93E+10				**1001.00**
1001.00	2.00	3.00	45.00	1.00	2.00	72.70	1.70	25.20	3.74E+08	1.16E+08	1.55E+08	3.51E+07	**1001.00**
1001.00	3.00	2.00	45.00	1.00	2.00	72.70	1.70	25.20	3.80E+07	4.73E+07	4.87E+07	2.52E+08	**1001.00**
1002.00	1.00	1.00	47.00	1.00	1.00	85.00	1.80	26.20			1.58E+08		**1002.00**
1002.00	2.00	3.00	47.00	1.00	1.00	85.00	1.80	26.20	1.53E+09	4.06E+08	1.80E+07	4.23E+10	**1002.00**
1002.00	3.00	2.00	47.00	1.00	1.00	85.00	1.80	26.20	2.23E+08	1.56E+08	1.10E+07	2.64E+11	**1002.00**
1003.00	1.00	1.00	66.00	1.00	1.00	73.90	1.77	23.60		1.16E+09			**1003.00**
1003.00	2.00	3.00	66.00	1.00	1.00	73.90	1.77	23.60	1.55E+09	8.98E+06	1.86E+07	1.21E+10	**1003.00**
1003.00	3.00	2.00	66.00	1.00	1.00	73.90	1.77	23.60	2.37E+11	2.83E+11	7.65E+07	5.21E+11	**1003.00**
1004.00	1.00	1.00	59.00	1.00	2.00	75.90	1.65	27.90	9.30E+09			1.12E+09	**1004.00**
1004.00	2.00	3.00	59.00	1.00	2.00	75.90	1.65	27.90	1.24E+11	9.94E+10	1.37E+06	3.16E+07	**1004.00**
1004.00	3.00	2.00	59.00	1.00	2.00	75.90	1.65	27.90	3.59E+11	1.72E+11	1.56E+07	3.21E+11	**1004.00**
1005.00	1.00	2.00	56.00	1.00	1.00	85.70	1.82	25.90		3.52E+09			**1005.00**
1005.00	2.00	3.00	56.00	1.00	1.00	85.70	1.82	25.90	6.30E+09	1.36E+09	4.80E+05	4.95E+05	**1005.00**
1005.00	3.00	1.00	56.00	1.00	1.00	85.70	1.82	25.90	8.37E+11	2.09E+10	3.91E+07	1.96E+07	**1005.00**
1006.00	1.00	2.00	53.00	1.00	2.00	87.70	1.75	28.60	6.71E+09				**1006.00**
1006.00	2.00	3.00	53.00	1.00	2.00	87.70	1.75	28.60	6.88E+08	1.28E+08	3.21E+07	8.48E+05	**1006.00**
1006.00	3.00	1.00	53.00	1.00	2.00	87.70	1.75	28.60	1.22E+08	2.40E+09	2.72E+06	1.82E+07	**1006.00**
1007.00	1.00	1.00	71.00	1.00	1.00	86.70	1.73	29.00	3.89E+08		6.67E+08		**1007.00**
1007.00	2.00	3.00	71.00	1.00	1.00	86.70	1.73	29.00	1.08E+11	7.47E+10	2.29E+08	1.81E+09	**1007.00**
1007.00	3.00	2.00	71.00	1.00	1.00	86.70	1.73	29.00	3.24E+10	2.77E+10	4.63E+09	9.62E+10	**1007.00**
1008.00	1.00	1.00	75.00	1.00	2.00	75.90	1.60	29.60	4.54E+11		7.27E+08		**1008.00**
1008.00	2.00	3.00	75.00	1.00	2.00	75.90	1.60	29.60	1.32E+11	1.44E+11	5.18E+09	4.72E+08	**1008.00**
1008.00	3.00	2.00	75.00	1.00	2.00	75.90	1.60	29.60	4.99E+11	5.38E+11	4.63E+08	3.91E+09	**1008.00**
1009.00	1.00	1.00	68.00	1.00	1.00	93.20	1.82	28.10	1.38E+08		1.39E+08		**1009.00**
1009.00	2.00	3.00	68.00	1.00	1.00	93.20	1.82	28.10	1.42E+10	7.09E+07	3.67E+06	2.44E+05	**1009.00**
1009.00	3.00	2.00	68.00	1.00	1.00	93.20	1.82	28.10	2.05E+08	2.11E+09	1.35E+06	1.35E+11	**1009.00**
1010.00	1.00	2.00	69.00	1.00	2.00	84.10	1.66	30.50	6.28E+11		4.16E+11	4.87E+08	**1010.00**
1010.00	2.00	3.00	69.00	1.00	2.00	84.10	1.66	30.50	1.60E+11	5.81E+10	3.80E+11	1.35E+06	**1010.00**
1010.00	3.00	1.00	69.00	1.00	2.00	84.10	1.66	30.50	1.98E+11	1.44E+11	1.40E+11	3.33E+09	**1010.00**
1011.00	1.00	1.00	23.00	2.00	2.00	45.45	1.70	15.73	8.21E+11	8.60E+11	4.79E+05	4.63E+05	**1011.00**
1011.00	2.00	3.00	23.00	2.00	2.00	45.45	1.70	15.73	1.07E+11	6.88E+10	1.36E+07	3.69E+05	**1011.00**
1011.00	3.00	2.00	23.00	2.00	2.00	45.45	1.70	15.73	1.78E+09	1.04E+09	3.85E+08	1.04E+05	**1011.00**
1011.00	4.00	4.00	23.00	2.00	2.00	45.45	1.70	15.73	1.63E+10	1.02E+10	3.23E+05	1.29E+05	**1011.00**
1016.00	1.00	2.00	71.00	1.00	2.00	71.80	1.60	28.00	5.17E+10	4.58E+09	5.04E+08		**1016.00**
1016.00	2.00	3.00	71.00	1.00	2.00	71.80	1.60	28.00	1.72E+11	5.07E+10	9.96E+09	5.78E+05	**1016.00**
1016.00	3.00	1.00	71.00	1.00	2.00	71.80	1.60	28.00	2.22E+11	2.04E+11	4.68E+10	2.64E+07	**1016.00**
1017.00	1.00	2.00	24.00	1.00	1.00	89.09	1.83	26.60	9.60E+08	2.46E+10	2.13E+08	8.49E+06	**1017.00**
1017.00	2.00	3.00	24.00	1.00	1.00	89.09	1.83	26.60	2.74E+09	2.24E+09	8.25E+08	1.67E+08	**1017.00**
1017.00	3.00	1.00	24.00	1.00	1.00	89.09	1.83	26.60	2.48E+08	4.67E+07	1.99E+08	1.05E+08	**1017.00**
1017.00	4.00	4.00	24.00	1.00	1.00	89.09	1.83	26.60	1.25E+09	5.19E+08	2.76E+09	0.00E+00	**1017.00**
1019.00	1.00	2.00	72.00	2.00	1.00	62.70	1.73	20.90	8.10E+10	1.31E+10	6.01E+11	3.47E+12	**1019.00**
1019.00	2.00	3.00	72.00	2.00	1.00	62.70	1.73	20.90	2.37E+12	8.41E+11	6.77E+10	2.27E+12	**1019.00**
1019.00	3.00	1.00	72.00	2.00	1.00	62.70	1.73	20.90	8.02E+11	4.91E+10	4.42E+09	4.79E+09	**1019.00**
1020.00	1.00	2.00	70.00	1.00	2.00	83.20	1.55	34.60	1.73E+09		1.44E+08	2.17E+08	**1020.00**
1020.00	2.00	3.00	70.00	1.00	2.00	83.20	1.55	34.60	2.85E+09	1.97E+09	9.57E+08	1.33E+10	**1020.00**
1020.00	3.00	1.00	70.00	1.00	2.00	83.20	1.55	34.60	1.86E+11	1.64E+11	3.59E+07	2.81E+08	**1020.00**
1021.00	1.00	1.00	55.00	1.00	2.00	78.20	1.63	29.40	5.33E+08			5.00E+11	**1021.00**
1021.00	2.00	3.00	55.00	1.00	2.00	78.20	1.63	29.40	4.51E+09	2.90E+10	2.76E+06	1.21E+06	**1021.00**
1021.00	3.00	2.00	55.00	1.00	2.00	78.20	1.63	29.40	1.93E+09	1.20E+09	3.29E+05	4.80E+09	**1021.00**
1023.00	1.00	2.00	58.00	1.00	1.00	90.90	1.78	28.70	1.58E+08			4.76E+09	**1023.00**
1023.00	2.00	3.00	58.00	1.00	1.00	90.90	1.78	28.70	1.59E+10	1.92E+10	1.36E+09	5.11E+05	**1023.00**
1023.00	3.00	1.00	58.00	1.00	1.00	90.90	1.78	28.70	6.67E+09	6.65E+09	9.23E+05	1.87E+11	**1023.00**
1024.00	1.00	1.00	23.00	1.00	1.00	91.48	1.88	25.88	4.50E+08	5.99E+08	3.03E+07	1.31E+05	**1024.00**
1024.00	2.00	3.00	23.00	1.00	1.00	91.48	1.88	25.88	2.81E+08	2.63E+08	6.10E+08	1.49E+07	**1024.00**
1024.00	3.00	2.00	23.00	1.00	1.00	91.48	1.88	25.88	3.71E+09	3.95E+09	8.51E+07	1.20E+07	**1024.00**
1024.00	4.00	4.00	23.00	1.00	1.00	91.48	1.88	25.88	3.34E+08	5.03E+09	1.31E+08	2.82E+06	**1024.00**

ID	level	Treatment	Age	Race	Sex	Weight	Height	BMI	SDAaverage	MCAaverage	RSAaverage	BAaverage	ID
1025.00	4.00	4.00	22.00	1.00	2.00	72.52	1.78	22.89	2.92E+11	6.09E+11	4.19E+07	1.27E+07	**1025.00**
1026.00	1.00	2.00	23.00	1.00	1.00	92.52	1.73	30.91	7.53E+07	2.21E+07	1.44E+07	2.21E+06	**1026.00**
1026.00	2.00	3.00	23.00	1.00	1.00	92.52	1.73	30.91	2.67E+07	1.73E+07	3.82E+06	2.08E+05	**1026.00**
1026.00	3.00	1.00	23.00	1.00	1.00	92.52	1.73	30.91	1.26E+06	1.28E+05	5.83E+06	4.52E+05	**1026.00**
1026.00	4.00	4.00	23.00	1.00	1.00	92.52	1.73	30.91	1.59E+10	1.28E+10	3.34E+06	1.20E+06	**1026.00**
1028.00	1.00	1.00	23.00	1.00	1.00	81.64	1.75	26.66	3.50E+07	2.33E+07	8.53E+06	8.78E+05	**1028.00**
1028.00	2.00	3.00	23.00	1.00	1.00	81.64	1.75	26.66	3.32E+08	2.15E+08	6.85E+05	6.59E+04	**1028.00**
1028.00	3.00	2.00	23.00	1.00	1.00	81.64	1.75	26.66	3.56E+08	1.16E+08	2.72E+06	4.88E+05	**1028.00**
1028.00	4.00	4.00	23.00	1.00	1.00	81.64	1.75	26.66	1.09E+07	8.62E+06	3.55E+04	3.55E+03	**1028.00**
1030.00	1.00	2.00	24.00	1.00	1.00	81.82	1.85	23.91	7.25E+09	5.53E+09	3.60E+06	3.05E+05	**1030.00**
1030.00	2.00	3.00	24.00	1.00	1.00	81.82	1.85	23.91	1.84E+09	1.28E+09	7.21E+06	2.04E+05	**1030.00**
1030.00	3.00	1.00	24.00	1.00	1.00	81.82	1.85	23.91	3.45E+08	2.57E+08	1.44E+07	5.09E+07	**1030.00**
1030.00	4.00	4.00	24.00	1.00	1.00	81.82	1.85	23.91	5.64E+09	5.19E+09	1.35E+05	9.02E+03	**1030.00**
1032.00	1.00	1.00	25.00	1.00	1.00	70.95	1.66	25.75	7.69E+09	4.09E+10	5.02E+07	2.77E+11	**1032.00**
1032.00	2.00	3.00	25.00	1.00	1.00	70.95	1.66	25.75	1.28E+10	5.88E+09	8.24E+08	1.98E+09	**1032.00**
1032.00	3.00	2.00	25.00	1.00	1.00	70.95	1.66	25.75	1.50E+08	1.98E+08	7.50E+05	2.45E+11	**1032.00**
1032.00	4.00	4.00	25.00	1.00	1.00	70.95	1.66	25.75	8.12E+08	2.71E+08	1.90E+07	3.61E+04	**1032.00**
1033.00	1.00	2.00	26.00	1.00	2.00	66.59	1.68	23.59	3.97E+10	4.84E+10	3.24E+07	6.64E+05	**1033.00**
1033.00	2.00	3.00	26.00	1.00	2.00	66.59	1.68	23.59	2.49E+09	1.37E+09	9.20E+07	9.25E+06	**1033.00**
1033.00	3.00	1.00	26.00	1.00	2.00	66.59	1.68	23.59	5.19E+09	7.96E+09	2.46E+07	6.42E+06	**1033.00**
1033.00	4.00	4.00	26.00	1.00	2.00	66.59	1.68	23.59	5.59E+11	7.43E+11	2.37E+06	1.42E+04	**1033.00**
1034.00	1.00	2.00	19.00	1.00	1.00	100.00	1.85	29.22	5.44E+10	6.31E+10	2.09E+07	8.04E+06	**1034.00**
1034.00	2.00	3.00	19.00	1.00	1.00	100.00	1.85	29.22	1.30E+10	1.30E+10	4.73E+08	3.55E+09	**1034.00**
1034.00	3.00	1.00	19.00	1.00	1.00	100.00	1.85	29.22	2.21E+10	3.89E+10	2.10E+08	1.37E+10	**1034.00**
1034.00	4.00	4.00	19.00	1.00	1.00	100.00	1.85	29.22	6.95E+12	1.03E+12	7.02E+07	3.51E+05	**1034.00**
1035.00	1.00	1.00	22.00	1.00	2.00	80.43	1.62	30.65	5.25E+07	1.05E+07	6.35E+06	3.57E+05	**1035.00**
1035.00	2.00	3.00	22.00	1.00	2.00	80.43	1.62	30.65	1.39E+10	1.72E+10	7.23E+09	1.67E+10	**1035.00**
1035.00	3.00	2.00	22.00	1.00	2.00	80.43	1.62	30.65	1.42E+10	2.12E+10	1.55E+07	9.54E+10	**1035.00**
1035.00	4.00	4.00	22.00	1.00	2.00	80.43	1.62	30.65	2.37E+09	3.66E+09	4.99E+06	8.07E+04	**1035.00**
1036.00	1.00	1.00	21.00	1.00	1.00	65.00	1.83	19.41	4.98E+09	4.67E+09	5.03E+06	3.04E+06	**1036.00**
1036.00	2.00	3.00	21.00	1.00	1.00	65.00	1.83	19.41	2.94E+08	1.47E+08	2.78E+08	4.44E+05	**1036.00**
1036.00	3.00	2.00	21.00	1.00	1.00	65.00	1.83	19.41	4.72E+09	3.01E+09	2.10E+06	9.33E+11	**1036.00**
1036.00	4.00	4.00	21.00	1.00	1.00	65.00	1.83	19.41	6.36E+09	3.84E+09	5.04E+07	6.58E+04	**1036.00**
1038.00	1.00	2.00	26.00	1.00	1.00	88.18	1.80	27.22	5.07E+07	2.32E+07	7.36E+05	2.62E+05	**1038.00**
1038.00	2.00	3.00	26.00	1.00	1.00	88.18	1.80	27.22	1.39E+12	3.92E+12	8.36E+07	4.15E+05	**1038.00**
1038.00	3.00	1.00	26.00	1.00	1.00	88.18	1.80	27.22	1.77E+08	8.66E+07	4.77E+07	6.09E+05	**1038.00**
1038.00	4.00	4.00	26.00	1.00	1.00	88.18	1.80	27.22	1.90E+09	5.40E+08	5.89E+06	3.05E+06	**1038.00**
1039.00	1.00	1.00	21.00	1.00	2.00	59.09	1.73	19.74	4.34E+08	1.99E+08	4.29E+07	5.40E+06	**1039.00**
1039.00	2.00	3.00	21.00	1.00	2.00	59.09	1.73	19.74	8.40E+08	4.70E+08	9.20E+06	9.17E+05	**1039.00**
1039.00	3.00	2.00	21.00	1.00	2.00	59.09	1.73	19.74	1.99E+06	7.86E+04	8.88E+06	4.54E+07	**1039.00**
1039.00	4.00	4.00	21.00	1.00	2.00	59.09	1.73	19.74	1.18E+07	2.05E+06	4.31E+05	1.96E+04	**1039.00**
1040.00	1.00	1.00	22.00	1.00	2.00	75.91	1.60	29.65	3.48E+07	2.11E+06	2.95E+09	2.93E+06	**1040.00**
1040.00	2.00	3.00	22.00	1.00	2.00	75.91	1.60	29.65	3.58E+07	1.61E+07	3.72E+07	2.38E+06	**1040.00**
1040.00	3.00	2.00	22.00	1.00	2.00	75.91	1.60	29.65	2.89E+09	1.54E+09	2.22E+07	1.31E+07	**1040.00**
1040.00	4.00	4.00	22.00	1.00	2.00	75.91	1.60	29.65	1.82E+09	1.61E+09	3.83E+09	3.23E+08	**1040.00**
1041.00	1.00	2.00	27.00	2.00	2.00	60.45	1.75	19.74	1.52E+09	6.79E+08	3.51E+09	1.00E+09	**1041.00**
1041.00	2.00	3.00	27.00	2.00	2.00	60.45	1.75	19.74	2.64E+09	2.53E+09	5.61E+07	1.31E+05	**1041.00**
1041.00	3.00	1.00	27.00	2.00	2.00	60.45	1.75	19.74	2.77E+09	1.12E+10	1.95E+08	2.23E+07	**1041.00**
1041.00	4.00	4.00	27.00	2.00	2.00	60.45	1.75	19.74	7.34E+09	2.10E+09	3.58E+07	3.72E+06	**1041.00**
1042.00	1.00	2.00	24.00	1.00	1.00	87.73	1.80	27.08	2.33E+07	2.84E+05	1.77E+06	7.40E+05	**1042.00**
1042.00	2.00	3.00	24.00	1.00	1.00	87.73	1.80	27.08	6.33E+08	1.20E+08	7.20E+08	5.29E+06	**1042.00**
1042.00	3.00	1.00	24.00	1.00	1.00	87.73	1.80	27.08	3.16E+07	2.78E+07	1.53E+07	1.70E+07	**1042.00**
1042.00	4.00	4.00	24.00	1.00	1.00	87.73	1.80	27.08	2.40E+06	1.44E+09	4.32E+07	9.59E+04	**1042.00**
1044.00	1.00	2.00	23.00	1.00	1.00	104.55	1.88	29.58	2.24E+10	7.01E+10	1.67E+05	1.35E+05	**1044.00**
1044.00	2.00	3.00	23.00	1.00	1.00	104.55	1.88	29.58	1.38E+09	1.67E+09	4.04E+04	3.75E+10	**1044.00**
1044.00	3.00	1.00	23.00	1.00	1.00	104.55	1.88	29.58	3.87E+09	5.49E+09	9.51E+03	1.52E+09	**1044.00**
1044.00	4.00	4.00	23.00	1.00	1.00	104.55	1.88	29.58	1.14E+09	1.04E+09	3.92E+04	9.81E+03	**1044.00**

BG_before_average	BG_after_average	Change_in_BG	Total_Mass_average	pH_avg	%_Moisture_average	SDA_D1	MCA_D1	RSA_D1	ID	BA_D1
88.00	116.50	28.50	190.53	5.50	0.79				**1001.00**	
95.50	106.00	10.50	182.10	6.27	0.75	4.36E+08		3.18E+08	**1001.00**	4.21E+07
96.00	115.00	19.00	129.95	5.93	0.82	8.87E+07	5.42E+07	1.40E+08	**1001.00**	7.51E+08
89.67	104.33	14.67	217.10	5.63	0.75			1.58E+08	**1002.00**	
94.67	121.67	27.00	211.36	6.67	0.73	8.85E+04	7.27E+08	3.64E+07	**1002.00**	5.03E+06
96.00	122.67	26.67	303.61	5.93	1.20	4.49E+06	1.55E+06	1.36E+07	**1002.00**	6.28E+11
88.00	112.00	24.00	439.57	4.94	0.82		1.16E+09		**1003.00**	
93.67	117.67	24.00	365.90	6.07	0.82	1.09E+09		2.01E+06	**1003.00**	3.45E+09
96.67	117.00	20.33	467.93	5.50	0.83	7.01E+11	8.49E+11	1.25E+08	**1003.00**	9.96E+11
93.33	119.33	26.00	163.80	7.59	0.66	1.85E+10			**1004.00**	
105.33	148.33	43.00	78.37	8.13	0.62	5.13E+10	3.07E+10	2.29E+06	**1004.00**	4.26E+06
112.33	154.00	41.67	96.17	7.00	0.58	7.61E+11	5.71E+10	6.85E+05	**1004.00**	9.64E+11
98.33	116.00	17.67	272.15	5.74	0.81				**1005.00**	
106.50	141.50	35.00	224.78	6.33	0.82	1.21E+10		4.67E+05	**1005.00**	2.80E+05
102.33	137.67	35.33	99.65	6.83	0.74	2.50E+12	5.39E+10		**1005.00**	1.88E+05
104.67	124.50	19.83	114.98	6.35	0.64				**1006.00**	
100.00	124.33	24.33	67.37	7.45	0.72	1.96E+08	8.24E+07	7.03E+05	**1006.00**	1.76E+05
94.00	118.00	24.00	101.75	6.90	0.71				**1006.00**	
94.00	111.00	17.00	208.40	5.17	0.82	6.66E+08			**1007.00**	
91.00	110.33	19.33	138.24	6.50	0.80	6.21E+09	3.05E+09	3.51E+08	**1007.00**	3.05E+09
102.67	104.67	2.00	158.31	6.37	0.82	8.65E+10	7.69E+10	6.73E+08	**1007.00**	9.62E+10
105.00	131.00	26.00	122.52	6.07	0.69	4.54E+11			**1008.00**	
117.33	137.00	19.67	116.09	7.55	0.68	4.76E+10	2.57E+11	1.57E+08	**1008.00**	1.90E+07
121.00	134.00	13.00	146.48	6.25	0.71				**1008.00**	
93.00	142.33	49.33	263.05	6.26	0.82	1.38E+08			**1009.00**	
108.33	155.33	47.00	270.23	6.27	0.82	6.67E+07	3.89E+07	8.22E+06	**1009.00**	3.33E+05
104.00	143.33	39.33	329.30	6.30	0.82	9.46E+07	6.17E+09	3.54E+06	**1009.00**	
87.00	91.00	4.00	88.70	6.23	0.68	1.83E+12		4.95E+10	**1010.00**	4.87E+08
99.00	112.00	13.00	82.65	7.10	0.67	6.13E+10	2.87E+10	9.50E+11	**1010.00**	2.05E+06
95.33	105.33	10.00	141.38	6.55	0.77	1.80E+11	1.68E+10	2.77E+11	**1010.00**	
85.00	128.00	43.00	61.00	6.93	0.72	2.00E+12	1.98E+12	8.26E+05	**1011.00**	8.26E+05
94.00	130.00	36.00	86.99	7.07	0.71	1.91E+11	7.35E+10	1.76E+07	**1011.00**	6.61E+05
86.33	115.33	29.00	62.37	5.87	0.80	7.92E+08	1.72E+08	7.23E+08	**1011.00**	8.96E+04
			99.12	7.60	0.80	1.63E+10	1.02E+10	3.23E+05	**1011.00**	1.29E+05
100.00	106.33	6.33	77.42	7.78	0.71	4.28E+09	8.40E+09	8.40E+07	**1016.00**	
106.00	134.00	28.00	74.18	7.90	0.71		3.48E+10	9.12E+09	**1016.00**	7.94E+05
104.33	109.00	4.67	85.19	7.30	0.69	2.40E+11	4.19E+11	6.45E+06	**1016.00**	1.83E+06
104.00	103.67	0.33	249.57	6.20	0.79	2.48E+09	7.36E+10	2.85E+08	**1017.00**	1.84E+07
109.00	121.67	12.67	388.13	6.30	0.75	8.63E+08	4.32E+08	1.58E+09	**1017.00**	1.40E+08
109.67	121.33	11.67	179.72	6.27	0.79	3.51E+08	6.49E+07	6.67E+07	**1017.00**	8.16E+07
			194.15	6.50	0.70	1.25E+09	5.19E+08	2.76E+09	**1017.00**	0.00E+00
117.50	188.00	70.50	175.07	5.75	0.77	2.22E+11	2.43E+10	1.80E+12	**1019.00**	3.47E+12
104.33	169.67	65.33	327.25	6.77	0.76	1.08E+11		4.81E+10	**1019.00**	5.62E+09
109.00	178.00	69.00	97.66	7.17	0.71	2.07E+12	1.06E+10	8.85E+09	**1019.00**	7.90E+09
99.67	146.33	46.67	144.79	6.52	0.76	3.19E+09		1.44E+08	**1020.00**	2.17E+08
103.00	134.50	31.50	274.40	6.50	0.81	1.12E+09	1.01E+09	1.79E+09	**1020.00**	2.33E+08
107.67	152.33	44.67	134.14	6.40	0.74	5.48E+11	4.39E+11	8.99E+07	**1020.00**	7.68E+07
99.00	123.33	24.33	33.42	5.99	0.73	8.33E+07			**1021.00**	5.00E+11
99.33	128.67	29.33	40.96	6.83	0.69	1.22E+09	1.42E+09	6.08E+06	**1021.00**	
100.00	135.00	35.00	20.69	6.10	0.72	3.23E+09	1.63E+09	7.98E+05	**1021.00**	4.81E+05
82.67	98.67	16.00	103.27	5.86	0.75	1.58E+08			**1023.00**	4.76E+09
104.67	106.67	2.00	120.84	6.67	0.79	3.36E+09	1.21E+10	2.47E+07	**1023.00**	2.05E+05
85.67	114.00	28.33	92.74	6.77	0.73	1.05E+10	6.27E+09	8.14E+05	**1023.00**	2.71E+11
99.00	107.33	8.33	49.54	6.07	0.68	1.23E+08	1.08E+08	4.93E+05	**1024.00**	5.91E+03
102.00	120.67	18.67	182.02	6.20	0.68	2.32E+08	1.81E+08	4.36E+08	**1024.00**	4.36E+06
101.00	114.33	13.33	162.81	6.40	0.71	6.49E+09	8.48E+09	1.01E+08	**1024.00**	3.49E+07
			188.78	6.20	0.77	3.34E+08	5.03E+09	1.31E+08	**1024.00**	2.82E+06

BG_before_average	BG_after_average	Change_in_BG	Total_Mass_average	pH_average	%_Moisture_average	SDA_D1	MCA_D1	RSA_D1	ID	BA_D1
			96.09	6.80	0.69	2.92E+11	6.09E+11	4.19E+07	**1025.00**	1.27E+07
102.67	110.00	7.33	42.43	6.50	0.73				**1026.00**	
104.00	118.33	14.33	88.20	6.20	0.80				**1026.00**	
101.67	107.33	5.67	64.39	6.55	0.72				**1026.00**	
			57.56	7.40	0.65	1.59E+10	1.28E+10	3.34E+06	**1026.00**	1.20E+06
99.33	113.00	13.67	127.67	6.50	0.76	6.33E+07	4.64E+07	1.11E+06	**1028.00**	2.81E+04
96.00	112.00	16.00	144.02	6.57	0.77	4.74E+08	4.85E+08	7.90E+05	**1028.00**	1.32E+05
102.67	134.33	31.67	119.21	6.25	0.77	1.32E+08	1.07E+08	4.79E+06	**1028.00**	7.64E+05
			19.37	7.40	0.87	1.09E+07	8.62E+06	3.55E+04	**1028.00**	3.55E+03
101.00	110.67	9.67	210.57	6.10	0.81	2.14E+10	1.65E+10	1.04E+07	**1030.00**	7.44E+05
102.00	112.67	10.67	129.62	6.63	0.77	1.04E+09	6.61E+08	4.44E+05	**1030.00**	4.25E+05
104.67	105.00	0.33	190.99	6.20	0.76	2.32E+08	1.72E+08	1.59E+07	**1030.00**	1.53E+08
			53.37	6.60	0.73	5.64E+09	5.19E+09	1.35E+05	**1030.00**	9.02E+03
89.67	98.33	8.67	93.03	7.17	0.70	1.37E+10	9.49E+09	1.40E+08	**1032.00**	1.61E+04
99.67	105.67	6.00	56.36	7.00	0.70	6.31E+09	4.37E+09	2.14E+09	**1032.00**	5.93E+09
79.00	109.00	30.00	64.30	6.35	0.73	2.20E+08	2.93E+08	3.08E+05	**1032.00**	4.69E+11
			67.08	7.40	0.80	8.12E+08	2.71E+08	1.90E+07	**1032.00**	3.61E+04
86.67	109.67	23.00	116.81	6.87	0.75	8.88E+10	1.14E+11	9.65E+07	**1033.00**	9.90E+05
90.00	103.67	13.67	72.02	6.47	0.73	3.91E+09	1.59E+09	1.83E+07	**1033.00**	8.56E+06
98.67	121.33	22.67	107.87	6.35	0.77	9.25E+08	5.40E+08	4.86E+07	**1033.00**	3.85E+04
			40.06	6.10	0.71	5.59E+11	7.43E+11	2.37E+06	**1033.00**	1.42E+04
92.67	150.67	58.00	101.07	6.75	0.66	8.27E+10	8.27E+10	1.28E+07	**1034.00**	3.01E+06
81.33	130.00	48.67	77.28	6.50	0.66				**1034.00**	
102.00	108.33	6.33	153.59	6.30	0.66	1.76E+10	1.29E+10	2.00E+07	**1034.00**	2.71E+10
			174.48	6.80	0.70	6.95E+12	1.03E+12	7.02E+07	**1034.00**	3.51E+05
83.67	87.33	3.67	131.40	6.63	0.74	2.02E+06	1.58E+06	4.71E+06	**1035.00**	2.09E+05
95.33	105.00	9.67	103.22	6.77	0.74	1.63E+10	2.87E+09	1.70E+10	**1035.00**	4.27E+10
90.33	112.33	22.00	82.50	6.90	0.72	4.23E+10	6.35E+10	3.12E+06	**1035.00**	2.75E+11
			16.91	6.10	0.78	2.37E+09	3.66E+09	4.99E+06	**1035.00**	8.07E+04
98.33	105.33	7.00	115.00	7.07	0.74	1.14E+10	1.11E+10	1.34E+05	**1036.00**	6.69E+04
92.33	95.00	2.67	71.14	6.40	0.75				**1036.00**	
95.00	101.00	6.00	134.14	6.70	0.75	9.44E+09	6.00E+09	2.37E+06	**1036.00**	1.77E+12
			108.27	6.80	0.75	6.36E+09	3.84E+09	5.04E+07	**1036.00**	6.58E+04
112.67	187.00	74.33	131.09	5.70	0.83	1.30E+07	8.64E+06	2.59E+05	**1038.00**	2.16E+04
101.00	197.67	96.67	115.31	6.75	0.75				**1038.00**	
96.00	177.33	81.33	108.16	6.05	0.79				**1038.00**	
			280.61	5.90	0.85	1.90E+09	5.40E+08	5.89E+06	**1038.00**	3.05E+06
86.00	113.33	27.33	121.02	6.95	0.72	8.68E+08	3.97E+08	4.67E+07	**1039.00**	1.07E+07
76.33	104.67	28.33	105.62	7.00	0.76	1.24E+09	8.25E+08	4.13E+06	**1039.00**	1.49E+06
98.67	96.67	2.00	101.29	7.35	0.70				**1039.00**	
			52.68	7.20	0.71	1.18E+07	2.05E+06	4.31E+05	**1039.00**	1.96E+04
93.00	155.33	62.33	38.19	3.50	0.70				**1040.00**	
92.67	133.33	40.67	117.18	6.73	0.72	2.08E+06	1.41E+05	1.33E+07	**1040.00**	2.50E+04
97.67	142.67	45.00	105.54	6.30	0.73	2.67E+09	2.20E+09	3.45E+07	**1040.00**	2.51E+07
			144.98	6.80	0.71	1.82E+09	1.61E+09	3.83E+09	**1040.00**	3.23E+08
85.00	117.00	32.00	53.69	7.03	0.65	9.37E+08	7.24E+08	9.12E+07	**1041.00**	7.72E+04
90.33	136.67	46.33	43.09	7.27	0.63	3.24E+09	1.44E+09	7.42E+07	**1041.00**	2.99E+04
88.33	116.33	28.00	37.71	6.43	0.65	3.23E+08	2.76E+08	1.42E+06	**1041.00**	1.01E+05
			42.32	6.80	0.70	7.34E+09	2.10E+09	3.58E+07	**1041.00**	3.72E+06
92.00	111.33	19.33	131.90	6.65	0.73	3.94E+07	0.00E+00	3.55E+06	**1042.00**	9.37E+05
104.67	138.00	33.33	120.23	6.95	0.75				**1042.00**	
107.33	114.50	7.17	106.46	6.53	0.77	3.99E+07	4.23E+07	7.29E+06	**1042.00**	2.62E+07
			208.71	6.20	0.86	2.40E+06	1.44E+09	4.32E+07	**1042.00**	9.59E+04
99.00	110.00	11.00	65.82	6.55	0.66	3.01E+10	1.31E+11	3.34E+05	**1044.00**	1.10E+04
105.00	109.67	4.67	63.47	5.60	0.71	2.55E+09	3.30E+09	6.00E+04	**1044.00**	7.49E+10
99.00	110.00	11.00	41.77	5.40	0.76	1.56E+08	1.31E+09	9.36E+03	**1044.00**	3.03E+09
			0.00	6.20	0.65	1.14E+09	1.04E+09	3.92E+04	**1044.00**	9.81E+03

SDA_D2	MCA_D2	RSA_D2	BA_D2	SDA_D3	MCA_D3	RSA_D3	BA_D3)
1.93E+10							
4.38E+08	2.25E+08	5.20E+07	6.05E+07	2.49E+08	7.62E+06	9.42E+07	2.80E+06
5.98E+06	3.77E+06	6.02E+06	4.65E+06	1.93E+07	8.38E+07	5.33E+04	1.93E+05
4.01E+09		1.30E+07	2.58E+10	5.86E+08	8.48E+07	4.50E+06	1.01E+11
2.67E+07	1.01E+06	9.94E+06	9.86E+09	6.38E+08	4.66E+08	9.43E+06	1.55E+11
2.01E+09		5.21E+07	3.07E+10	1.54E+09	8.98E+06	1.82E+06	2.19E+09
3.55E+09	5.67E+08	1.03E+08		5.71E+09	8.89E+07	1.46E+06	4.63E+10
1.01E+08							1.12E+09
1.14E+11		9.60E+05	3.62E+07	2.06E+11	1.68E+11	8.65E+05	5.42E+07
1.31E+09	8.63E+07	3.67E+04	2.37E+06	3.16E+11	4.60E+11	4.60E+07	5.17E+07
	3.52E+09						
3.58E+09	1.07E+09	4.68E+05	8.26E+05	3.22E+09	1.65E+09	5.04E+05	3.80E+05
9.71E+09	8.25E+09	2.93E+06	6.37E+05	7.05E+08	5.03E+08	7.52E+07	5.81E+07
6.71E+09							
1.18E+09	1.73E+08	6.35E+07	1.52E+06				
1.37E+08	7.45E+07			1.06E+08	4.72E+09	2.72E+06	1.82E+07
1.11E+08		6.67E+08					
2.09E+10	2.98E+09	1.43E+08	1.79E+09	2.97E+11	2.18E+11	1.92E+08	5.94E+08
8.29E+09	4.98E+09	1.30E+10		2.35E+09	1.17E+09	2.09E+08	
		7.27E+08					
5.42E+10	1.03E+11	4.86E+08	3.47E+08	2.94E+11	7.34E+10	1.49E+10	1.05E+09
3.06E+11	4.87E+11	3.07E+08	2.13E+08	6.92E+11	5.88E+11	6.19E+08	7.61E+09
		1.39E+08					
4.24E+10	1.67E+08	3.80E+05		1.14E+07	6.91E+06	2.42E+06	1.55E+05
1.27E+07	1.48E+08	8.97E+04	8.83^10	5.09E+08	2.77E+06	4.09E+05	1.35E+11
4.95E+10		1.19E+12		4.24E+09		8.84E+09	
2.10E+11	7.01E+08	8.90E+10	6.62E+05	2.09E+11	1.45E+11	1.01E+11	1.35E+06
				2.15E+11	2.71E+11	3.40E+09	3.33E+09
4.72E+10	7.74E+09	4.48E+05	3.64E+05	4.13E+11	5.96E+11	1.63E+05	1.99E+05
1.08E+11	1.39E+10	2.29E+07	2.56E+05	2.17E+10	1.19E+11	2.26E+05	1.91E+05
4.43E+09	2.83E+09	4.27E+08	4.80E+04	1.08E+08	1.11E+08	3.66E+06	1.76E+05
9.91E+10	7.56E+08	9.24E+08					
2.17E+11	6.52E+10	1.72E+08	3.62E+05	1.27E+11	5.20E+10	2.06E+10	
2.69E+11	1.58E+11	3.95E+08		1.58E+11	3.51E+10	1.40E+11	5.09E+07
2.66E+08	1.53E+08	7.19E+07	3.21E+06	1.33E+08	1.03E+08	2.81E+08	3.90E+06
5.44E+09	4.58E+09	8.59E+08	1.20E+08	1.93E+09	1.71E+09	3.43E+07	2.42E+08
3.80E+08	6.71E+07	4.85E+08	1.46E+07	1.14E+07	8.12E+06	4.55E+07	2.18E+08
2.07E+10	1.81E+09	3.33E+09		1.89E+08		1.89E+08	
4.79E+11	6.51E+11	5.10E+10	6.71E+12	6.52E+12	1.03E+12	1.04E+11	9.81E+10
3.55E+10	2.96E+10	4.96E+08	4.51E+08	3.01E+11	1.07E+11	3.92E+09	6.02E+09
		1.44E+08		2.74E+08			
2.80E+09	4.90E+08	8.60E+08	3.94E+10	4.62E+09	4.41E+09	2.21E+08	1.34E+08
8.24E+08	5.29E+08	4.12E+06	6.24E+07	1.06E+10	5.29E+10	1.38E+07	7.04E+08
9.82E+08							
2.85E+09	9.64E+08	1.13E+06	2.28E+05	9.47E+09	8.47E+10	1.08E+06	2.19E+06
1.13E+09	1.01E+09	2.31E+04	9.09E+05	1.42E+09	9.74E+08	1.65E+05	1.44E+10
1.43E+09	2.24E+08	8.11E+08	1.59E+05	4.28E+10	4.53E+10	3.23E+09	1.17E+06
7.06E+09	1.16E+10	1.43E+06	2.39E+11	2.46E+09	2.07E+09	5.26E+05	5.19E+10
1.18E+09	1.65E+09	6.36E+07	2.12E+05	4.98E+07	3.96E+07	2.67E+07	1.75E+05
5.34E+08	5.47E+08	5.47E+08	1.92E+07	7.63E+07	6.08E+07	8.48E+08	2.12E+07
4.32E+09	3.09E+09	1.31E+08	5.35E+05	3.10E+08	2.68E+08	2.30E+07	5.89E+05

SDA_D2	MCA_D2	RSA_D2	BA_D2	SDA_D3	MCA_D3	RSA_D3	BA_D3)
6.87E+06	8.74E+04	2.87E+07	4.37E+06	1.44E+08	4.42E+07	1.24E+05	4.71E+04
5.06E+07	3.35E+07	6.84E+06	2.74E+05	2.85E+06	1.15E+06	7.98E+05	1.42E+05
1.93E+06	3.22E+04	1.03E+07	4.64E+05	5.86E+05	2.24E+05	1.35E+06	4.40E+05
				6.64E+06	1.86E+05	1.59E+07	1.73E+06
3.40E+07	6.00E+06	6.60E+05	6.00E+04	4.88E+08	1.55E+08	6.04E+05	6.10E+03
				5.80E+08	1.24E+08	6.59E+05	2.12E+05
1.30E+08	1.69E+07	3.55E+05	6.76E+04	1.97E+08	5.81E+07	2.86E+04	1.05E+05
4.36E+09	2.38E+09	1.59E+07	1.72E+05	1.06E+08	8.14E+08	5.31E+06	1.42E+04
6.41E+07	6.62E+07	2.62E+07	2.76E+04	7.39E+08	5.32E+08	1.07E+06	7.39E+04
6.08E+09	5.15E+09	7.21E+06	2.78E+05	3.32E+09	1.08E+11	3.52E+06	8.31E+11
3.15E+10	1.28E+10	4.19E+07	2.94E+04	6.25E+08	4.49E+08	2.93E+08	7.81E+03
				8.00E+07	1.02E+08	1.19E+06	2.10E+10
1.10E+10	1.19E+10	2.44E+05	1.81E+05	1.92E+10	1.90E+10	4.92E+05	8.20E+05
1.08E+09	1.16E+09	1.66E+08	9.93E+06				
				9.46E+09	1.54E+10	5.71E+05	1.28E+07
				2.61E+10	4.36E+10	2.90E+07	1.31E+07
				1.30E+10	1.30E+10	4.73E+08	3.55E+09
				2.66E+10	6.49E+10	4.00E+08	2.75E+08
2.42E+07	2.90E+06	8.33E+05	7.45E+05	1.31E+08	2.70E+07	1.35E+07	1.16E+05
2.23E+10	4.55E+10	6.67E+05	7.27E+09	3.15E+09	3.15E+09	4.72E+09	0.00E+00
2.31E+08	1.93E+08	4.29E+07	4.83E+04	3.30E+07	3.48E+07	4.14E+05	1.11E+10
3.86E+08	2.12E+08	1.91E+05	4.24E+06	3.19E+09	2.65E+09	1.48E+07	4.82E+06
3.83E+08	1.28E+08	5.53E+08	9.79E+04	2.04E+08	1.66E+08	1.61E+06	7.90E+05
				8.96E+06	6.72E+06	1.84E+06	9.32E+10
2.53E+07	1.56E+07	5.64E+05	2.14E+05	1.14E+08	4.55E+07	1.38E+06	5.50E+05
2.79E+12	7.84E+12	1.64E+08	7.47E+05	4.74E+08	3.95E+08	3.55E+06	8.29E+04
2.04E+08	1.48E+08	3.34E+06	4.57E+04	1.50E+08	2.52E+07	9.21E+07	1.17E+06
				6.50E+05	9.10E+03	3.90E+07	6.24E+04
9.57E+08	3.59E+08	2.15E+07	5.38E+05	3.25E+08	2.25E+08	1.95E+06	7.28E+05
3.63E+06	1.57E+05	1.69E+07	2.12E+06	3.52E+05	0.00E+00	8.31E+05	8.87E+07
3.48E+07	2.11E+06	2.95E+09	2.93E+06				
3.25E+07	1.19E+06	9.18E+07	2.82E+06	7.27E+07	4.71E+07	6.42E+06	4.28E+06
				3.11E+09	8.87E+08	9.98E+06	1.02E+06
3.53E+09	1.28E+09	4.81E+06	1.41E+08	8.58E+07	2.86E+07	1.04E+10	2.86E+09
8.41E+07	5.61E+07	7.48E+07	3.03E+05	4.61E+09	6.09E+09	1.93E+07	5.95E+04
7.89E+09	3.32E+10	5.81E+08	5.56E+07	9.70E+07	9.70E+07	3.59E+06	1.11E+07
7.10E+06	5.68E+05	0.00E+00	5.44E+05				
1.22E+09	2.32E+08	1.39E+09	1.04E+07	5.00E+07	7.69E+06	5.38E+07	1.92E+05
1.87E+07	1.93E+07	2.98E+07	6.43E+04	3.63E+07	2.18E+07	8.71E+06	2.47E+07
1.47E+10	8.66E+09	0.00E+00	2.58E+05				
				2.08E+08	5.20E+07	2.08E+04	2.60E+04
				7.59E+09	9.67E+09	9.67E+03	2.13E+07

ID	BG_before_D1	BG_after_D1	BG_before_D2	BG_after_D2	BG_before_D3	BG_after_D3	Total_Mass_D1	pH_D1
1001.00	78.00	126.00	92.00	107.00	94.00		196.20	5.48
1001.00	92.00	104.00		107.00	99.00	107.00	146.60	6.10
1001.00	94.00	141.00	101.00	107.00	93.00	97.00	192.10	6.60
1002.00	87.00	105.00	93.00	108.00	89.00	100.00	172.20	6.18
1002.00	101.00	127.00	92.00	124.00	91.00	114.00	313.40	6.10
1002.00	92.00	135.00	103.00	111.00	93.00	122.00	373.70	5.40
1003.00	88.00	116.00	86.00	105.00	90.00	115.00	332.60	5.28
1003.00	101.00	147.00	94.00	96.00	86.00	110.00	250.60	6.00
1003.00	94.00	144.00	92.00	114.00	104.00	93.00	539.90	5.60
1004.00	95.00	108.00	94.00	99.00	91.00	151.00	128.60	7.90
1004.00	104.00	150.00	116.00	139.00	96.00	156.00	51.27	8.00
1004.00	98.00	179.00	127.00	142.00	112.00	141.00	128.67	7.20
1005.00	94.00	104.00	104.00	131.00	97.00	113.00		
1005.00			101.00	176.00	112.00	107.00	234.70	6.60
1005.00	100.00	169.00	103.00	135.00	104.00	109.00	152.60	7.00
1006.00	93.00	148.00	92.00	101.00	129.00			
1006.00	112.00	129.00	94.00	120.00	94.00	124.00	46.05	7.60
1006.00	98.00	126.00	91.00	99.00	93.00	129.00		
1007.00	93.00	99.00	95.00	109.00	94.00	125.00	226.10	5.19
1007.00	123.00	114.00	43.00	113.00	107.00	104.00	104.72	6.00
1007.00	108.00	105.00	97.00	108.00	103.00	101.00	50.00	7.60
1008.00	96.00	130.00	116.00	131.00	103.00	132.00	111.20	6.26
1008.00	117.00	155.00	115.00	117.00	120.00	139.00	79.77	7.20
1008.00	119.00	129.00	133.00	135.00	111.00	138.00		
1009.00	96.00	127.00	93.00	135.00	90.00	165.00	456.60	6.12
1009.00	112.00	150.00	106.00	167.00	107.00	149.00	264.50	6.20
1009.00	109.00	142.00	105.00	150.00	98.00	138.00	355.60	6.40
1010.00	87.00	87.00	87.00	95.00			69.80	6.80
1010.00	105.00	104.00	105.00	88.00	87.00	144.00	107.98	7.10
1010.00	73.00	99.00	107.00	99.00	106.00	118.00	194.70	5.90
1011.00	84.00	111.00	85.00	136.00	86.00	137.00	87.71	6.80
1011.00	92.00	132.00	95.00	138.00	95.00	120.00	103.21	7.20
1011.00	87.00	125.00	87.00	108.00	85.00	113.00	42.44	5.70
1011.00							99.12	7.60
1016.00	95.00	138.00	113.00	98.00	92.00	83.00	24.94	8.04
1016.00			106.00	138.00	106.00	130.00	71.48	7.70
1016.00	100.00	95.00	105.00	116.00	108.00	116.00	49.11	7.80
1017.00	111.00	102.00	99.00	95.00	102.00	114.00	415.50	6.40
1017.00	104.00	137.00	115.00	114.00	108.00	114.00	393.90	6.40
1017.00	109.00	114.00	107.00	135.00	113.00	115.00	130.94	6.20
1017.00							194.15	6.50
1019.00		188.00	136.00	160.00	99.00	216.00	249.50	5.25
1019.00	107.00	161.00	107.00	219.00	99.00	129.00	79.26	6.70
1019.00	109.00	169.00	105.00	148.00	113.00	217.00	80.60	7.10
1020.00	80.00	137.00	101.00	171.00	118.00	131.00	162.70	6.88
1020.00	98.00	107.00	104.00		107.00	162.00	348.10	6.20
1020.00	103.00	146.00	109.00	172.00	111.00	139.00	81.51	6.40
1021.00	92.00	154.00	98.00	99.00	107.00	117.00		6.57
1021.00	100.00	122.00	103.00	126.00	95.00	138.00	48.55	6.50
1021.00	100.00	137.00	99.00	136.00	101.00	132.00	17.79	6.40
1023.00	90.00	114.00	92.00	98.00	66.00	84.00	111.00	6.40
1023.00	100.00	106.00	106.00	98.00	108.00	116.00	97.67	6.80
1023.00	65.00	105.00	103.00	112.00	89.00	125.00	115.90	7.00
1024.00	94.00	111.00	101.00	104.00	102.00	107.00	12.50	6.30
1024.00	104.00	124.00	101.00	106.00	101.00	132.00	143.90	6.50
1024.00	101.00	94.00	101.00	142.00	101.00	107.00	195.38	6.40
1024.00							188.78	6.20

ID	BG_before_D1	BG_after_D1	BG_before_D2	BG_after_D2	BG_before_D3	BG_after_D3	Total_Mass_D1	pH_D1
1025.00							96.09	6.80
1026.00	107.00	124.00	100.00	101.00	101.00	105.00	0.00	
1026.00	110.00	117.00	99.00	128.00	103.00	110.00	0.00	
1026.00	109.00	103.00	107.00	115.00	89.00	104.00	0.00	
1026.00							57.56	7.40
1028.00	109.00	132.00	94.00	108.00	95.00	99.00	144.89	6.80
1028.00	94.00	114.00	100.00	118.00	94.00	104.00	200.45	6.50
1028.00	101.00	111.00	106.00	156.00	101.00	136.00	186.48	5.60
1028.00							19.37	7.40
1030.00	101.00	105.00	99.00	114.00	103.00	113.00	273.32	6.80
1030.00	103.00	112.00	104.00	124.00	99.00	102.00	119.74	6.00
1030.00	101.00	112.00	100.00	99.00	113.00	104.00	239.40	6.10
1030.00							53.37	6.60
1032.00	84.00	97.00	87.00	99.00	98.00	99.00	131.67	7.10
1032.00	99.00	102.00	102.00	109.00	98.00	106.00	87.26	6.60
1032.00	101.00	119.00	35.00	98.00	101.00	110.00	88.48	6.60
1032.00							67.08	7.40
1033.00	86.00	99.00	85.00	115.00	89.00	115.00	114.00	7.60
1033.00	92.00	86.00	92.00	110.00	86.00	115.00	112.51	6.70
1033.00	105.00	127.00	105.00	127.00	86.00	110.00	183.70	6.30
1033.00							40.06	6.10
1034.00	91.00	179.00	100.00	160.00	87.00	113.00	104.63	6.90
1034.00	90.00	120.00	72.00	126.00	82.00	144.00	0.00	
1034.00	110.00	84.00	94.00	117.00	102.00	124.00	202.48	6.40
1034.00							174.48	6.80
1035.00	87.00	93.00	79.00	87.00	85.00	82.00	67.70	6.80
1035.00	89.00	131.00	96.00	88.00	101.00	96.00	165.10	6.90
1035.00	93.00	127.00	96.00	114.00	82.00	96.00	96.03	6.80
1035.00							16.91	6.10
1036.00	97.00	100.00	110.00	115.00	88.00	101.00	108.22	7.10
1036.00	97.00	103.00	91.00	86.00	89.00	96.00	0.00	
1036.00	96.00	103.00	89.00	95.00	100.00	105.00	208.70	6.90
1036.00							108.27	6.80
1038.00	122.00	193.00	122.00	231.00	94.00	137.00	66.40	5.50
1038.00	94.00	187.00	104.00	220.00	105.00	186.00	0.00	
1038.00	105.00	198.00	94.00	187.00	89.00	147.00	0.00	
1038.00							280.61	5.90
1039.00	73.00	79.00	85.00	129.00	100.00	132.00	340.40	6.90
1039.00	75.00	97.00	78.00	123.00	76.00	94.00	110.80	7.10
1039.00	93.00	90.00	96.00	81.00	107.00	119.00	0.00	
1039.00							52.68	7.20
1040.00	88.00	143.00	94.00	139.00	97.00	184.00	0.00	0.00
1040.00	93.00	119.00	93.00	142.00	92.00	139.00	70.30	6.80
1040.00	99.00	124.00	100.00	145.00	94.00	159.00	184.35	5.80
1040.00							144.98	6.80
1041.00	80.00	108.00	90.00	134.00	85.00	109.00	7.14	8.40
1041.00	90.00	159.00	82.00	100.00	99.00	151.00	54.01	8.00
1041.00	90.00	120.00	90.00	120.00	85.00	109.00	14.34	6.50
1041.00							42.32	6.80
1042.00	88.00	96.00	90.00	97.00	98.00	141.00	218.70	6.80
1042.00	103.00	130.00	121.00		90.00	146.00	0.00	
1042.00	103.00	132.00	112.00		107.00	97.00	62.98	6.10
1042.00							208.71	6.20
1044.00	97.00	110.00	104.00	116.00	96.00	104.00	52.04	6.50
1044.00	104.00	98.00	104.00	114.00	107.00	117.00	58.23	5.30
1044.00	102.00	107.00	96.00	110.00	99.00	113.00	41.34	5.30
1044.00								6.20

ID	Total_Mass_D2	pH_D2	Total_Mass_D3	pH_D3	%_Moisture_D1_A	%_Moisture_D1_B	%_Moisture_D1_C	%_Moisture_D2_A	%_Moisture_D2_B
1001.00	231.20	5.55	144.20	5.47	0.83	0.82	0.83	0.77	0.74
1001.00	146.00	5.90	253.70	6.80	0.77	0.79	0.76	0.73	0.75
1001.00	176.71	5.40	21.05	5.80	0.79	0.80	0.80	0.86	0.83
1002.00	226.80	4.82	252.30	5.88	0.71	0.69	0.69	0.77	0.73
1002.00	218.60	6.60	102.09	7.30	0.74	0.74	0.72	0.76	0.73
1002.00	225.89	6.40	311.23	6.00	2.11	2.07	1.86	0.80	0.80
1003.00	565.50	4.06	420.60	5.49	0.82	0.81	0.82	0.85	0.85
1003.00	332.90	6.10	514.20	6.10	0.83	0.82	0.83	0.80	0.81
1003.00	488.50	5.40	375.40	5.50	0.84	0.85	0.85	0.84	0.84
1004.00	221.20	7.06	141.60	7.81	0.68	0.66	0.67	0.70	0.73
1004.00	93.80	7.90	90.03	8.50	0.60	0.58	0.58	0.62	0.62
1004.00	3.14	6.40	156.70	7.40	0.54	0.54	0.56	0.51	0.52
1005.00	352.80	3.88	191.50	7.59				0.85	0.85
1005.00	323.40	5.80	116.23	6.60	0.76	0.76	0.76	0.83	0.83
1005.00	97.83	6.60	48.52	6.90	0.74	0.74	0.75	0.76	0.76
1006.00	201.20	5.29	28.76	7.40				0.63	0.63
1006.00	88.69	7.30			0.69	0.71	0.73	0.73	0.74
1006.00	187.52	6.60	15.97	7.20				0.75	0.75
1007.00	182.00	4.89	217.10	5.43	0.84	0.84	0.84	0.81	0.80
1007.00	170.70	6.60	139.30	6.90	0.79	0.82	0.81	0.81	0.82
1007.00	233.30	5.60	191.64	5.90	0.81	0.78	0.81	0.80	0.80
1008.00	80.65	5.93	175.70	6.03	0.64	0.66	0.68	0.70	0.67
1008.00	129.30		139.19	7.90	0.66	0.65	0.65	0.70	0.69
1008.00	110.56	6.40	182.39	6.10				0.68	0.69
1009.00	248.40	6.02	84.15	6.64	0.81	0.81	0.81	0.84	0.85
1009.00	253.80	6.00	292.40	6.60	0.81	0.82	0.82	0.80	0.80
1009.00	360.50	6.20	271.80	6.30	0.81	0.81	0.81	0.85	0.84
1010.00	146.90	4.49	49.40	7.40	0.63	0.63	0.65	0.74	0.74
1010.00	70.21	6.90	69.76	7.30	0.69	0.66	0.68	0.70	0.68
1010.00			88.05	7.20	0.87	0.87	0.87		
1011.00	50.82	7.10	44.48	6.90	0.77	0.73	0.70	0.77	0.72
1011.00	45.48	7.50	112.29	6.50	0.67	0.66	0.66	0.68	0.72
1011.00	53.37	6.60	91.30	5.30	0.86	0.88		0.74	0.79
1011.00					0.80	0.81	0.79		
1016.00	103.65	7.23	103.67	8.07	0.69	0.68	0.69	0.74	0.71
1016.00	66.97	7.90	84.09	8.10	0.69	0.69	0.68	0.74	0.74
1016.00	129.07	7.00	77.38	7.10	0.65	0.66	0.66	0.72	0.71
1017.00	1.91	6.30	331.30	5.90	0.79	0.80	0.78	0.82	0.81
1017.00	596.20	6.10	174.30	6.40	0.75	0.75	0.73	0.69	0.76
1017.00	217.92	6.50	190.31	6.10	0.81	0.82	0.80	0.81	0.81
1017.00					0.68	0.69	0.74		
1019.00	62.82	6.01	212.90	5.99	0.83	0.83	0.82	0.71	0.72
1019.00	125.69	7.10	776.80	6.50	0.68	0.65	0.66	0.73	0.75
1019.00	67.51	7.00	144.87	7.40	0.69	0.72	0.66	0.69	0.71
1020.00		5.74	126.88	6.95	0.76	0.77	0.75	0.75	0.80
1020.00	203.00	6.30	272.10	7.00	0.78	0.77	0.77	0.82	0.82
1020.00	82.40	6.30	238.50	6.50	0.66	0.69	0.67	0.77	0.80
1021.00	39.60	5.08	27.24	6.33	0.83	0.82		0.69	0.69
1021.00	18.94	6.60	55.38	7.40	0.65	0.66	0.65	0.73	0.75
1021.00	5.00	6.00	39.28	5.90	0.73	0.74	0.70	0.59	0.69
1023.00	71.80	5.07	127.00	6.12	0.76	0.80	0.79	0.73	0.71
1023.00	129.86	6.70	134.99	6.50	0.80	0.80	0.80	0.79	0.80
1023.00	103.02	6.30	59.30	7.00	0.68	0.69	0.73	0.80	0.80
1024.00	2.84	5.90	133.29	6.00	0.60	0.62	0.61	0.73	0.75
1024.00	248.17	6.00	154.00	6.10	0.62	0.65	0.65	0.72	0.70
1024.00	112.94	6.70	180.12	6.10	0.75	0.75	0.75	0.69	0.69
1024.00					0.76	0.77	0.77		

ID	Total_Mass_D2	pH_D2	Total_Mass_D3	pH_D3	%_Moisture_D1_A	%_Moisture_D1_B	%_Moisture_D1_C	%_Moisture_D2_A	%_Moisture_D2_B
1025.00					0.69	0.69	0.69		
1026.00	72.33	6.50	54.95	6.50				0.68	0.70
1026.00	79.12	6.70	185.49	5.70					0.69
1026.00	82.61	6.70	110.55	6.40				0.71	0.71
1026.00					0.67	0.65	0.64		
1028.00	0.00		238.12	6.20	0.72	0.72	0.72		
1028.00	153.55	6.90	78.05	6.30	0.73	0.74		0.76	0.76
1028.00	0.00		171.15	6.90	0.81	0.80	0.81		
1028.00						0.88	0.86		
1030.00	180.59	6.00	177.80	5.50	0.78	0.79	0.79	0.81	0.78
1030.00	137.10	6.40	132.03	7.50	0.79	0.79	0.81	0.76	0.75
1030.00	88.48	6.30	245.10	6.20	0.77	0.78	0.77	0.75	0.74
1030.00					0.73	0.73	0.73		
1032.00	79.66	7.40	67.75	7.00	0.72	0.73	0.70	0.74	0.74
1032.00	47.73	7.20	34.10	7.20	0.71	0.70	0.69	0.73	0.73
1032.00	0.00		104.41	6.10	0.64	0.67	0.68		
1032.00					0.78	0.80	0.81		
1033.00	97.74	6.80	138.69	6.20	0.72	0.73	0.74	0.73	0.73
1033.00	103.54	6.30	0.00	6.40	0.72	0.77	0.74	0.76	0.71
1033.00	0.00		139.91	6.40	0.83	0.83	0.85		
1033.00					0.72	0.71	0.71		
1034.00	0.00		198.59	6.60	0.66	0.64	0.67		
1034.00	0.00		231.84	6.50					
1034.00	0.00		258.30	6.20	0.65	0.66	0.66		
1034.00					0.71	0.69	0.70		
1035.00	107.22	6.80	219.29	6.30	0.70	0.70	0.69	0.72	0.70
1035.00	72.37	7.00	72.20	6.40	0.76	0.77	0.77	0.77	0.76
1035.00	100.77	7.40	50.71	6.50	0.71	0.68	0.69	0.74	0.75
1035.00						0.78	0.77		
1036.00	191.65	7.10	45.14	7.00	0.71	0.71	0.75	0.79	0.79
1036.00	92.89	7.20	120.53	5.60				0.74	0.77
1036.00	0.00		193.73	6.50	0.73	0.75	0.77		
1036.00					0.75	0.73	0.75		
1038.00	181.55	5.60	145.33	6.00	0.84	0.84	0.83	0.83	0.83
1038.00	215.46	6.70	130.46	6.80				0.70	0.70
1038.00	141.58	6.50	182.90	5.60				0.72	0.74
1038.00					0.82	0.92	0.82		
1039.00	0.00		22.65	7.00	0.77	0.78	0.78		
1039.00	152.65	7.00	53.40	6.90	0.77	0.76	0.77	0.80	0.80
1039.00	156.15	7.30	147.71	7.40				0.72	0.73
1039.00					0.71	0.72	0.71		
1040.00	114.56	7.00	0.00					0.69	0.70
1040.00	120.18	6.60	161.06	6.80	0.69	0.71	0.67	0.71	0.71
1040.00	0.00		132.28	6.80	0.75	0.75	0.76		
1040.00					0.71	0.73	0.69		
1041.00	92.02	6.50	61.91	6.20		0.66	0.67	0.65	0.66
1041.00	12.01	7.00	63.25	6.80		0.68	0.65	0.62	0.62
1041.00	95.16	6.40	3.62	6.40	0.61	0.61		0.69	0.66
1041.00					0.71	0.69	0.71		
1042.00	177.00	6.50	0.00		0.76	0.76	0.77	0.70	0.68
1042.00	168.00	7.10	192.70	6.80				0.70	0.69
1042.00		6.40	149.94	7.10	0.74	0.73	0.73	0.84	0.85
1042.00					0.85	0.86	0.87		
1044.00	145.41	6.60	0.00		0.63	0.65	0.66	0.70	0.67
1044.00			68.70	5.90		0.78	0.76		
1044.00	0.00		83.97	5.50	0.83	0.82	0.81		
1044.00					0.63	0.65	0.66		

ID	%_Moisture_D2_C	%_Moisture_D3_A	%_Moisture_D3_B	%_Moisture_D3_C	Calories	Water	Protein	Carbohydrates	Fiber
1001.00	0.74	0.78	0.80	0.81	1884.00	831.00	54.00	277.00	20.00
1001.00	0.77	0.71	0.71	0.72	1426.00	1010.00	74.00	215.00	17.00
1001.00	0.82	0.81	0.81		1342.00	1588.00	59.00	188.00	18.00
1002.00	0.74	0.81	0.80	0.81	1503.00	545.00	57.00	189.00	14.00
1002.00	0.77	0.70	0.72	0.73	1437.00	807.00	53.00	196.00	10.00
1002.00	0.82	0.75	0.76	0.78	1666.00	1436.00	60.00	214.00	19.00
1003.00	0.85	0.79	0.80	0.81	1435.00	2291.00	56.00	232.00	36.00
1003.00	0.81	0.83	0.83	0.83	2586.00	4286.00	108.00	381.00	44.00
1003.00	0.84	0.80	0.80	0.82	3148.00	3583.00	139.00	437.00	55.00
1004.00		0.62	0.62	0.62	1607.00	3546.00	90.00	233.00	37.00
1004.00	0.62	0.64	0.65	0.64	1471.00	1887.00	65.00	215.00	26.00
1004.00		0.64	0.67	0.65	1469.00	3118.00	70.00	218.00	36.00
1005.00	0.85	0.77	0.78	0.78	1365.00	1631.00	49.00	187.00	15.00
1005.00	0.83	0.87	0.86	0.86	1732.00	1583.00	61.00	240.00	21.00
1005.00	0.76	0.69	0.71	0.71	1674.00	1375.00	56.00	201.00	25.00
1006.00	0.65	0.63	0.64	0.64	2152.00	1015.00	73.00	309.00	20.00
1006.00	0.74				1360.00	3803.00	60.00	201.00	19.00
1006.00	0.75	0.64	0.63		1741.00	2792.00	90.00	207.00	25.00
1007.00	0.81	0.81	0.81	0.82	2396.00	1972.00	82.00	359.00	33.00
1007.00	0.82	0.78	0.78	0.77	2032.00	1600.00	65.00	296.00	25.00
1007.00	0.80	0.85	0.85	0.85	1859.00	1913.00	69.00	246.00	30.00
1008.00	0.67	0.72	0.71	0.73	2333.00	2615.00	75.00	344.00	31.00
1008.00	0.72	0.71	0.66	0.71	1535.00	2119.00	58.00	230.00	12.00
1008.00	0.67	0.73	0.76	0.76	2102.00	2622.00	68.00	300.00	29.00
1009.00	0.85	0.82	0.79	0.82	1617.00	1416.00	64.00	233.00	14.00
1009.00	0.80	0.83	0.83	0.85	1769.00	2329.00	66.00	268.00	15.00
1009.00	0.85	0.80	0.81	0.81	1767.00	2405.00	50.00	309.00	21.00
1010.00	0.73	0.66	0.66	0.65	1460.00	3434.00	80.00	161.00	10.00
1010.00	0.69	0.65	0.65	0.63	2358.00	2724.00	112.00	255.00	23.00
1010.00		0.68	0.67	0.68	2423.00	2877.00	114.00	251.00	27.00
1011.00	0.71	0.68	0.68	0.68	1487.00	1281.00	67.00	191.00	7.00
1011.00	0.70	0.73	0.76	0.80	1136.00	1287.00	52.00	187.00	9.00
1011.00	0.74	0.81	0.78	0.81	1004.00	1096.00	25.00	177.00	7.00
1011.00									
1016.00	0.72	0.72	0.72	0.71	1438.00	1099.00	52.00	203.00	9.70
1016.00	0.74	0.69	0.69	0.68	1145.00	859.00	51.00	137.00	11.00
1016.00	0.72	0.69	0.68	0.71	1828.00	945.00	71.00	175.00	12.00
1017.00	0.80	0.77	0.76	0.79	3214.00	2590.00	135.00	433.00	31.00
1017.00	0.76	0.78	0.76	0.77	2649.00	2631.00	81.00	365.00	17.00
1017.00	0.81	0.74	0.76	0.73	2447.00	1579.00	70.00	367.00	13.00
1017.00									
1019.00	0.68	0.81	0.77	0.76	1002.00	984.00	52.00	150.00	17.00
1019.00	0.74	0.88	0.86	0.89	2228.00	2053.00	62.00	397.00	14.00
1019.00	0.65	0.77	0.73	0.76	1225.00	1643.00	47.00	182.00	13.00
1020.00	0.77	0.76	0.76	0.74	1056.00	2407.00	33.00	148.00	14.00
1020.00	0.81	0.84	0.82	0.84	1715.00	4669.00	51.00	259.00	28.00
1020.00	0.78	0.77	0.74	0.78	1107.00	1970.00	49.00	178.00	31.00
1021.00	0.69	0.69	0.69	0.70	1447.00	1493.00	58.00	171.00	11.00
1021.00		0.70	0.71	0.69	1754.00	2061.00	65.00	182.00	9.00
1021.00		0.78	0.76	0.78	1217.00	823.00	33.00	160.00	8.00
1023.00	0.71	0.75	0.74	0.75	1258.00	381.00	50.00	101.00	6.40
1023.00	0.78	0.78	0.78	0.76	1006.00	401.00	44.00	98.00	7.00
1023.00	0.81	0.71	0.69	0.70	1006.00	401.00	44.00	98.00	7.00
1024.00	0.74	0.69	0.71	0.69	3041.00	4665.00	128.00	386.00	15.00
1024.00	0.73	0.68	0.69	0.70	3068.00	2744.00	111.00	368.00	14.00
1024.00	0.66	0.70	0.69	0.72	2731.00	2599.00	138.00	282.00	14.00
1024.00									

ID	%_Moisture_D2_C	%_Moisture_D3_A	%_Moisture_D3_B	%_Moisture_D3_C	Calories	Water	Protein	Carbohydrates	Fiber
1025.00									
1026.00	0.71	0.77	0.74	0.76	2014.00	1818.00	76.00	228.00	11.00
1026.00	0.71	0.87	0.87	0.88	1001.00	1370.00	45.00	133.00	11.00
1026.00	0.71	0.72	0.73	0.74	1615.00	1230.00	58.00	146.00	11.00
1026.00									
1028.00		0.81	0.81	0.81	3063.00	2071.00	146.00	273.00	14.00
1028.00	0.75	0.82	0.82	0.81	1760.00	2133.00	71.00	234.00	12.00
1028.00		0.73	0.73	0.71	1797.00	1436.00	103.00	198.00	10.00
1028.00									
1030.00	0.81	0.83	0.82	0.83	3240.00	3690.00	162.00	384.00	34.00
1030.00	0.75	0.77	0.75	0.76	3440.00	3661.00	119.00	468.00	27.00
1030.00	0.74	0.79	0.76	0.77	3170.00	3306.00	97.00	480.00	32.00
1030.00									
1032.00	0.73	0.68	0.62	0.63	1558.00	3010.00	56.00	218.00	22.00
1032.00	0.73	0.69	0.62	0.74	1978.00	3286.00	84.00	229.00	23.00
1032.00		0.80	0.79	0.80	2081.00	2500.00	80.00	275.00	11.00
1032.00									
1033.00	0.70	0.81	0.80	0.81	1589.00	1016.00	77.00	218.00	13.00
1033.00	0.72				1933.00	685.00	72.00	268.00	21.00
1033.00		0.70	0.70	0.69	2487.00	1628.00	91.00	331.00	22.00
1033.00									
1034.00		0.66	0.64	0.66	893.00	532.00	57.00	111.00	4.00
1034.00		0.67	0.67	0.66	1211.00	414.00	52.00	159.00	6.00
1034.00		0.64	0.66	0.69	1108.00	269.00	45.00	112.00	6.00
1034.00									
1035.00	0.72	0.81	0.77	0.83	1594.00	2499.00	61.00	243.00	18.00
1035.00	0.76	0.68	0.68	0.68	1965.00	1755.00	78.00	252.00	15.00
1035.00	0.77	0.73	0.71	0.71	2453.00	1172.00	70.00	344.00	8.00
1035.00									
1036.00	0.79	0.71	0.71	0.70	2243.00	2486.00	86.00	266.00	15.00
1036.00	0.77	0.75	0.73	0.73	2874.00	2068.00	84.00	427.00	15.00
1036.00		0.74	0.78	0.72	2620.00	1881.00	122.00	362.00	15.00
1036.00									
1038.00	0.84	0.80	0.79	0.80	2426.00	1664.00	97.00	347.00	11.00
1038.00	0.73	0.77	0.78	0.78	2272.00	2283.00	105.00	300.00	8.00
1038.00	0.73	0.84	0.85	0.85	1656.00	1262.00	54.00	249.00	8.00
1038.00									
1039.00		0.67	0.67	0.67	1925.00	3283.00	87.00	295.00	28.00
1039.00	0.81	0.71	0.71	0.72	1764.00	3360.00	68.00	280.00	26.00
1039.00	0.73	0.68	0.69	0.67	2057.00	3088.00	73.00	317.00	27.00
1039.00									
1040.00	0.70				1307.00	1729.00	59.00	179.00	11.00
1040.00	0.71	0.75	0.76	0.76	1522.00	2400.00	51.00	220.00	8.00
1040.00		0.71	0.72	0.72	1514.00	2586.00	42.00	247.00	7.00
1040.00									
1041.00	0.66	0.69	0.69	0.51	1166.00	1315.00	58.00	139.00	4.00
1041.00		0.62	0.62	0.62	1131.00	798.00	36.00	142.00	5.00
1041.00	0.67	0.64			955.00	929.00	29.00	158.00	10.00
1041.00									
1042.00	0.68				2867.00	2729.00	94.00	458.00	18.00
1042.00	0.69	0.78	0.88	0.77	3290.00	2633.00	129.00	471.00	16.00
1042.00	0.78	0.75	0.75	0.75	2130.00	2100.00	76.00	317.00	15.00
1042.00									
1044.00	0.68				2545.00	3520.00	107.00	284.00	19.00
1044.00		0.67	0.67	0.67	2272.00	2684.00	91.00	266.00	15.00
1044.00		0.71	0.71	0.68	2788.00	3249.00	138.00	264.00	14.00
1044.00									

ID	Total_fat	Sat_fat	Mono_fat	Poly_fat	Cholesterol	Cholesterol_ total	Triglyceride	HDL_Chole sterol	VLDL_Chol esterol	LDL_Choles terol
1001.00	68.00	23.00	16.00	7.00	136.00	159.00	70.00	67.00	14.00	78.00
1001.00	32.00	11.00	7.00	3.00	121.00	165.00	70.00	75.00	14.00	76.00
1001.00	43.00	15.00	13.00	5.00	205.00	169.00	54.00	71.00	11.00	87.00
1002.00	61.00	25.00	14.00	4.00	156.00	142.00	85.00	49.00	17.00	76.00
1002.00	50.00	18.00	16.00	5.00	133.00	174.00	147.00	43.00	29.00	102.00
1002.00	68.00	24.00	17.00	11.00	141.00	152.00	102.00	43.00	20.00	89.00
1003.00	46.00	8.00	16.00	14.00	55.00	135.00	66.00	52.00	13.00	70.00
1003.00	83.00	20.00	25.00	14.00	234.00	134.00	67.00	45.00	13.00	76.00
1003.00	111.00	22.00	36.00	35.00	173.00	137.00	61.00	50.00	12.00	75.00
1004.00	46.00	10.00	11.00	10.00	176.00	191.00	234.00	56.00	47.00	88.00
1004.00	45.00	10.00	13.00	11.00	113.00	196.00	194.00	58.00	39.00	99.00
1004.00	44.00	9.00	14.00	15.00	100.00	203.00	172.00	64.00	34.00	105.00
1005.00	50.00	19.00	10.00	6.00	131.00	198.00	129.00	44.00	26.00	128.00
1005.00	63.00	20.00	22.00	7.00	113.00	200.00	193.00	41.00	39.00	120.00
1005.00	73.00	19.00	11.00	12.00	135.00	174.00	111.00	45.00	22.00	107.00
1006.00	74.00	27.00	14.00	4.00	166.00	154.00	242.00	37.00	48.00	69.00
1006.00	39.00	15.00	11.00	5.00	138.00	165.00	245.00	33.00	49.00	83.00
1006.00	63.00	13.00	16.00	20.00	558.00	148.00	141.00	37.00	28.00	83.00
1007.00	77.00	31.00	17.00	7.00	513.00	182.00	102.00	39.00	20.00	123.00
1007.00	69.00	23.00	4.00	4.00	372.00	184.00	105.00	39.00	21.00	124.00
1007.00	74.00	31.00	23.00	13.00	540.00	187.00	109.00	42.00	22.00	123.00
1008.00	83.00	27.00	25.00	14.00	315.00	181.00	60.00	73.00	12.00	96.00
1008.00	46.00	16.00	2.00	2.00	221.00	188.00	83.00	68.00	17.00	103.00
1008.00	70.00	23.00	22.00	11.00	202.00	198.00	62.00	74.00	12.00	112.00
1009.00	51.00	22.00	8.00	4.00	136.00	137.00	57.00	58.00	11.00	68.00
1009.00	50.00	22.00	14.00	7.00	109.00	148.00	56.00	58.00	11.00	79.00
1009.00	46.00	19.00	14.00	7.00	102.00	157.00	58.00	58.00	12.00	87.00
1010.00	51.00	16.00	19.00	12.00	243.00	283.00	136.00	61.00	27.00	195.00
1010.00	98.00	29.00	29.00	16.00	360.00		160.00	58.00	32.00	194.00
1010.00	107.00	40.00	30.00	19.00	420.00	271.00	118.00	62.00	24.00	185.00
1011.00	49.00	17.00	17.00	10.00	375.00	197.00	80.00	73.00	16.00	108.00
1011.00	46.00	10.00	13.00	16.00	220.00	192.00	113.00	73.00	23.00	96.00
1011.00	24.00	8.00	5.00	4.00	210.00	194.00	108.00	76.00	22.00	96.00
1011.00						218.00	87.00	68.00	17.00	133.00
1016.00	50.00	17.00	9.00	2.00	179.00	202.00	124.00	51.00	25.00	126.00
1016.00	46.00	18.00	13.00	3.00	141.00	223.00	159.00	50.00	32.00	141.00
1016.00	96.00	39.00	34.00	11.00	270.00	265.00	155.00	51.00	31.00	183.00
1017.00	109.00	32.00	38.00	23.00	337.00	157.00	57.00	36.00	11.00	110.00
1017.00	106.00	41.00	25.00	11.00	208.00	171.00	82.00	33.00	16.00	122.00
1017.00	79.00	27.00	27.00	10.00	197.00	190.00	108.00	35.00	22.00	133.00
1017.00						169.00	93.00	38.00	19.00	112.00
1019.00	25.00	8.00	9.00	4.00	104.00	134.00	407.00	26.00	>400	>400
1019.00	42.00	15.00	10.00	4.00	147.00	132.00	362.00	24.00	72.00	36.00
1019.00	35.00	9.00	14.00	8.00	101.00	136.00	336.00	26.00	67.00	43.00
1020.00	41.00	11.00	11.00	6.00	90.00	319.00	572.00	38.00	>400	>400
1020.00	57.00	17.00	12.00	5.00	113.00	324.00	646.00	38.00	> 400	> 400
1020.00	22.00	8.00	7.00	4.00	131.00	266.00	521.00	35.00	> 400	> 400
1021.00	60.00	19.00	13.00	8.00	107.00	213.00	101.00	60.00	20.00	133.00
1021.00	86.00	40.00	11.00	5.00	245.00	217.00	92.00	57.00	18.00	142.00
1021.00	50.00	17.00	7.00	3.00	33.00	207.00	116.00	60.00	23.00	124.00
1023.00	75.00	20.00	22.00	10.00	227.00	166.00	163.00	52.00	33.00	81.00
1023.00	49.00	19.00	18.00	6.00	201.00	156.00	209.00	38.00	42.00	76.00
1023.00	49.00	19.00	18.00	6.00	201.00	147.00	150.00	39.00	30.00	
1024.00	113.00	36.00	45.00	18.00	424.00	124.00	68.00	44.00	14.00	66.00
1024.00	132.00	47.00	30.00	15.00	325.00	134.00	124.00	41.00	25.00	68.00
1024.00	118.00	34.00	37.00	10.00	380.00	134.00	68.00	37.00	14.00	83.00
1024.00						113.00	171.00	34.00	34.00	45.00

ID	Total_fat	Sat_fat	Mono_fat	Poly_fat	Cholesterol	Cholesterol_ total	Triglyceride	HDL_Chole sterol	VLDL_Chol esterol	LDL_Choles terol
1025.00						141.00	123.00	46.00	25.00	70.00
1026.00	92.00	26.00	30.00	21.00	346.00	171.00	152.00	39.00	30.00	102.00
1026.00	35.00	11.00	13.00	5.00	310.00	152.00	101.00	38.00	20.00	94.00
1026.00	92.00	92.00	29.00	12.00	188.00	156.00	124.00	39.00	25.00	92.00
1026.00						158.00	124.00	46.00	25.00	87.00
1028.00	153.00	57.00	62.00	13.00	694.00	161.00	96.00	53.00	19.00	89.00
1028.00	61.00	25.00	14.00	5.00	160.00	155.00	108.00	51.00	22.00	82.00
1028.00	66.00	26.00	21.00	6.00	269.00	145.00	113.00	45.00	23.00	77.00
1028.00						165.00	135.00	56.00	27.00	82.00
1030.00	125.00	38.00	48.00	23.00	348.00	146.00	92.00	49.00	18.00	79.00
1030.00	134.00	39.00	38.00	23.00	449.00	143.00	68.00	55.00	14.00	74.00
1030.00	105.00	35.00	17.00	10.00	213.00	140.00	91.00	55.00	18.00	67.00
1030.00						148.00	59.00	54.00	12.00	82.00
1032.00	53.00	20.00	13.00	5.00	107.00	152.00	164.00	37.00	33.00	82.00
1032.00	81.00	27.00	22.00	10.00	352.00	154.00	145.00	37.00	29.00	88.00
1032.00	77.00	31.00	26.00	12.00	294.00	169.00	155.00	39.00	31.00	99.00
1032.00						172.00	147.00	44.00	29.00	99.00
1033.00	48.00	15.00	17.00	10.00	131.00	145.00	81.00	56.00	16.00	73.00
1033.00	67.00	20.00	19.00	13.00	161.00	132.00	75.00	49.00	15.00	68.00
1033.00	90.00	90.00	23.00	11.00	345.00	139.00	90.00	55.00	18.00	66.00
1033.00						134.00	122.00	47.00	24.00	63.00
1034.00	24.00	10.00	7.00	2.00	167.00	160.00	79.00	39.00	16.00	105.00
1034.00	41.00	18.00	12.00	4.00	148.00	179.00	138.00	43.00	28.00	108.00
1034.00	54.00	24.00	11.00	5.00	273.00	165.00	93.00	51.00	19.00	95.00
1034.00						151.00	93.00	43.00	19.00	89.00
1035.00	44.00	14.00	13.00	10.00	102.00	106.00	86.00	41.00	17.00	48.00
1035.00	75.00	23.00	19.00	9.00	207.00	115.00	67.00	41.00	13.00	61.00
1035.00	96.00	35.00	36.00	17.00	226.00	105.00	87.00	42.00	17.00	46.00
1035.00						117.00	84.00	40.00	17.00	60.00
1036.00	94.00	39.00	30.00	8.00	357.00	126.00	66.00	48.00	13.00	65.00
1036.00	97.00	34.00	30.00	12.00	210.00	126.00	107.00	42.00	21.00	63.00
1036.00	80.00	27.00	19.00	6.00	271.00	132.00	104.00	46.00	21.00	65.00
1036.00						121.00	82.00	50.00	16.00	55.00
1038.00	77.00	24.00	25.00	11.00	301.00	202.00	418.00	35.00		
1038.00	77.00	28.00	31.00	6.00	297.00	194.00	221.00	35.00	44.00	115.00
1038.00	46.00	15.00	7.00	2.00	101.00	224.00	254.00	32.00	51.00	141.00
1038.00						192.00	206.00	34.00	41.00	117.00
1039.00	52.00	18.00	17.00	9.00	177.00	206.00	76.00	64.00	15.00	127.00
1039.00	47.00	12.00	17.00	8.00	210.00	202.00	111.00	60.00	22.00	120.00
1039.00	61.00	18.00	16.00	8.00	124.00	228.00	84.00	57.00	17.00	154.00
1039.00						206.00	133.00	74.00	27.00	105.00
1040.00	41.00	17.00	14.00	6.00	178.00	164.00	105.00	49.00	21.00	94.00
1040.00	52.00	19.00	13.00	10.00	173.00	194.00	101.00	51.00	20.00	123.00
1040.00	42.00	13.00	11.00	4.00	58.00	182.00	116.00	48.00	23.00	111.00
1040.00						195.00	109.00	48.00	22.00	125.00
1041.00	41.00	14.00	12.00	8.00	392.00	146.00	94.00	55.00	19.00	72.00
1041.00	48.00	13.00	15.00	12.00	367.00	119.00	101.00	47.00	20.00	52.00
1041.00	24.00	10.00	2.00	6.00	0.00	122.00	65.00	51.00	13.00	58.00
1041.00						131.00	71.00	55.00	14.00	62.00
1042.00	76.00	26.00	20.00	6.00	163.00	243.00	117.00	43.00	23.00	177.00
1042.00	102.00	35.00	23.00	7.00	308.00	241.00	144.00	45.00	29.00	167.00
1042.00	65.00	22.00	18.00	8.00	152.00	224.00	87.00	46.00	17.00	161.00
1042.00						258.00	105.00	48.00	21.00	189.00
1044.00	112.00	44.00	27.00	9.00	386.00	200.00	75.00	46.00	15.00	139.00
1044.00	95.00	36.00	20.00	7.00	452.00	169.00	96.00	42.00	19.00	108.00
1044.00	130.00	42.00	46.00	24.00	697.00	186.00	111.00	41.00	22.00	123.00
1044.00						203.00	95.00	50.00	19.00	134.00

ID	Total_Cholesterol:HDL_Ratio	(BM)Tue 1	(BM)Wed 1	(BM)Thur 1	(BM)Fri 1				(BM)Sat 1	(BM)Sun 1	(BM)Mon 1
1001.00	2.40	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1001.00	2.20	0.00	0.00	1.00	0.00				0.00	0.00	0.00
1001.00	2.40	0.00	-2.00	-1.00	-1.00				0.00	0.00	0.00
1002.00	2.90	0.00	0.00		4.00	0.00	-2.00	-4.00	0.00	-2.00	2.00
1002.00	4.00	0.00	0.00	0.00	1.00				0.00	0.00	0.00
1002.00	3.50	-1.00	-2.00	-2.00	2.00	-3.00	-3.00	2.00	3.00	0.00	0.00
1003.00	2.60	0.00	0.00	0.00	0.00				0.00	0.00	2.00
1003.00	3.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1003.00	2.70	0.00	2.00	1.00	1.00				3.00	1.00	2.00
1004.00	3.40	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1004.00	3.40	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1004.00	3.20	0.00	0.00		0.00				0.00	0.00	0.00
1005.00	4.50	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1005.00	4.90	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1005.00	3.90	1.00	0.00	0.00	0.00				-1.00	-1.00	-1.00
1006.00	4.20	0.00	-2.00	-1.00	-1.00				0.00	0.00	0.00
1006.00	5.00	0.00	0.00	0.00	1.00					0.00	0.00
1006.00	4.00		0.00	0.00					-1.00	-2.00	0.00
1007.00	4.70	-1.00	-1.00	0.00	1.00				-1.00	0.00	1.00
1007.00	4.70	2.00	1.00	0.00	0.00				0.00	0.00	5.00
1007.00	4.50	0.00	1.00	0.00	0.00				0.00	0.00	0.00
1008.00	2.50	0.00	0.00	0.00	1.00				0.00	0.00	0.00
1008.00	2.80	1.00	0.00	0.00	0.00				0.00	0.00	0.00
1008.00	2.70	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1009.00	2.40	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1009.00	2.60	1.00	0.00	2.00	0.00				0.00	0.00	0.00
1009.00	2.70	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1010.00	4.60	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1010.00	4.90	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1010.00	4.40	0.00	0.00	0.00	3.00				3.00	2.00	3.00
1011.00	2.70	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1011.00	2.60	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1011.00	2.60	0.00	1.00	2.00	1.00				1.00	0.00	0.00
1011.00	3.20										
1016.00	4.00	0.00	0.00	0.00	1.00				0.00	0.00	0.00
1016.00	4.50	0.00	1.00	0.00	1.00				0.00	0.00	0.00
1016.00	5.20	0.00	1.00	1.00	0.00				-1.00	-1.00	0.00
1017.00	4.40	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1017.00	5.20	0.00	0.00	0.00	0.00				0.00	0.00	1.00
1017.00	5.40	0.00	0.00	0.00	0.00				0.00	0.00	1.00
1017.00	4.40										
1019.00	5.20	-5.00	-1.00	-1.00	-1.00				-5.00	0.00	0.00
1019.00	5.50	-1.00	-1.00	-1.00	0.00				0.00	0.00	0.00
1019.00	5.20	0.00	4.00	2.00	1.00				0.00	0.00	0.00
1020.00	8.40	0.00	0.00	0.00	0.00				1.00	2.00	2.00
1020.00	8.50	-1.00	0.00	1.00	3.00				0.00	-1.00	-1.00
1020.00	7.60	0.00	1.00	-1.00	0.00				1.00	0.00	0.00
1021.00	3.60	0.00	1.00	-1.00	0.00				-1.00	0.00	1.00
1021.00	3.80	0.00	-1.00	1.00	0.00				0.00	0.00	-1.00
1021.00	3.50	0.00	1.00	0.00	1.00				1.00	1.00	-1.00
1023.00	3.20	0.00	0.00	0.00	0.00				0.00	0.00	-2.00
1023.00	4.10	0.00	1.00	0.00	0.00				1.00	0.00	0.00
1023.00	3.80	0.00	0.00	0.00	1.00				0.00	1.00	0.00
1024.00	2.80	0.00	0.00	2.00	0.00				0.00	0.00	0.00
1024.00	3.30	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1024.00	3.60	0.00	-1.00	0.00	0.00				0.00	0.00	0.00
1024.00	3.30										

ID	Total_Cholesterol:HDL_Ratio	(BM)Tue 1	(BM)Wed 1	(BM)Thur 1	(BM)Fri 1				(BM)Sat 1	(BM)Sun 1	(BM)Mon 1
1025.00	3.10										
1026.00	4.40	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1026.00	4.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1026.00	4.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1026.00	3.40										
1028.00	3.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1028.00	3.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1028.00	3.20	5.00	4.00	3.00	3.00				1.00	0.00	4.00
1028.00	2.90										
1030.00	3.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1030.00	2.60	1.00	0.00	0.00	0.00				0.00	0.00	0.00
1030.00	2.50	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1030.00	2.70										
1032.00	4.10	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1032.00	4.20	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1032.00	4.30	0.00	1.00	0.00	0.00				0.00	0.00	0.00
1032.00	3.90										
1033.00	2.60	0.00	0.00	1.00	2.00				2.00	-1.00	0.00
1033.00	2.70	0.00	0.00	1.00	0.00				-1.00	0.00	0.00
1033.00	2.50	-1.00	0.00	-1.00	-1.00				-1.00	-1.00	-1.00
1033.00	2.90										
1034.00	4.10	0.00	1.00	0.00	0.00				0.00	1.00	
1034.00	4.20		0.00	0.00	3.00				2.00	0.00	
1034.00	3.20	0.00	-1.00	-1.00					0.00	1.00	
1034.00	3.50										
1035.00	2.60	0.00	0.00	0.00	0.00				0.00		0.00
1035.00	2.80	0.00	-1.00	0.00	0.00				0.00	0.00	0.00
1035.00	2.50	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1035.00	2.90										
1036.00	2.60		0.00	0.00	0.00				0.00		0.00
1036.00	3.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1036.00	2.90	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1036.00	2.40										
1038.00	5.80	5.00	5.00	5.00	3.00				2.00	1.00	1.00
1038.00	5.50	1.00	1.00	2.00	1.00				2.00	0.00	1.00
1038.00	7.00	0.00	0.00	-1.00	0.00				0.00	0.00	-1.00
1038.00	5.60										
1039.00	3.20	0.00	0.00	0.00	1.00				0.00		0.00
1039.00	3.40	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1039.00	4.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1039.00	2.80										
1040.00	3.30	0.00	0.00	0.00	1.00				0.00	0.00	0.00
1040.00	3.80	-2.00	0.00	-2.00	1.00				0.00	0.00	0.00
1040.00	3.80	0.00	0.00	0.00	0.00				0.00	0.00	1.00
1040.00	4.10										
1041.00	2.70	0.00	0.00	0.00	1.00				2.00	4.00	0.00
1041.00	2.50	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1041.00	2.40	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1041.00	2.40										
1042.00	5.70	0.00	0.00	0.00	1.00				1.00	0.00	0.00
1042.00	5.40	0.00	0.00	0.00	-1.00				1.00	0.00	-1.00
1042.00	4.90	0.00	0.00	0.00	0.00				1.00	0.00	-1.00
1042.00	5.40										
1044.00	4.30	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1044.00	4.00	0.00	0.00	1.00	0.00				0.00	1.00	1.00
1044.00	0.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1044.00	4.10										

ID	(QUALITY) Tue 1	(QUALITY) Wed 1	(QUALITY) Thur 1	(QUALITY) Fri 1				(QUALITY) Sat 1	(QUALITY) Sun 1	(QUALITY) Mon 1
1001.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1001.00	0.00	0.00	1.00	0.00				0.00	0.00	0.00
1001.00	-1.00	-1.00	-1.00	-1.00				0.00	0.00	0.00
1002.00	0.00	0.00	0.00	5.00	0.00	-1.00	-3.00	0.00	-3.00	1.00
1002.00	0.00	0.00	0.00	1.00				0.00	0.00	0.00
1002.00	-1.00	-1.00	-1.00	0.00	-3.00	-5.00	1.00	3.00	0.00	-1.00
1003.00	0.00	0.00	0.00	0.00				0.00	0.00	3.00
1003.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1003.00	0.00	0.00	5.00	1.00				5.00	1.00	1.00
1004.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1004.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1004.00	0.00	0.00		0.00				0.00	0.00	0.00
1005.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1005.00	0.00	0.00	0.00	0.00				0.00	0.00	-1.00
1005.00	1.00	0.00	0.00	0.00				-1.00	-1.00	-1.00
1006.00	-1.00	-3.00	-1.00	0.00				0.00	1.00	0.00
1006.00	1.00	0.00	1.00	1.00					0.00	1.00
1006.00		0.00	0.00					-1.00	-1.00	0.00
1007.00	-1.00	-1.00	0.00	1.00				0.00	0.00	1.00
1007.00	1.00	1.00	1.00	0.00				0.00	-1.00	3.00
1007.00	0.00	1.00	1.00	1.00				0.00	0.00	0.00
1008.00	0.00	0.00	0.00	1.00				1.00	0.00	0.00
1008.00	1.00	0.00	0.00	0.00				0.00	0.00	0.00
1008.00	1.00	0.00	0.00	0.00				0.00	0.00	0.00
1009.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1009.00	0.00	0.00	1.00	0.00				0.00	0.00	0.00
1009.00	0.00	0.00	0.00	-1.00				-1.00	0.00	-1.00
1010.00	0.00	0.00	0.00	1.00				0.00	0.00	0.00
1010.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1010.00	0.00	0.00	1.00	3.00				3.00	3.00	3.00
1011.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1011.00	0.00	0.00	0.00	-1.00				-1.00	-1.00	-3.00
1011.00	0.00	3.00	3.00	3.00				3.00	0.00	0.00
1011.00										
1016.00	0.00	0.00	0.00	1.00				0.00	0.00	0.00
1016.00	0.00	1.00	0.00	1.00				0.00	0.00	0.00
1016.00	0.00	1.00	1.00	0.00				-1.00	-1.00	1.00
1017.00	0.00	0.00	0.00	1.00				1.00	3.00	0.00
1017.00	3.00	1.00	0.00	0.00				1.00	0.00	1.00
1017.00	0.00	0.00	0.00	0.00				0.00	0.00	1.00
1017.00										
1019.00	0.00	0.00	0.00	1.00				0.00	0.00	0.00
1019.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1019.00	0.00	5.00	3.00	1.00				0.00	0.00	0.00
1020.00	0.00	1.00	1.00	1.00				1.00	1.00	1.00
1020.00	0.00	0.00	3.00	5.00				1.00	0.00	99.33
1020.00	0.00	1.00	-1.00	0.00				1.00	0.00	1.00
1021.00	0.00	1.00	1.00	0.00				1.00	1.00	1.00
1021.00	0.00	-1.00	1.00	0.00				0.00	0.00	-5.00
1021.00	-1.00	0.00	0.00	1.00				1.00	1.00	-1.00
1023.00	0.00	0.00	0.00	0.00				0.00	0.00	3.00
1023.00	0.00	1.00	0.00	0.00				1.00	0.00	0.00
1023.00	0.00	0.00	0.00	1.00				0.00	1.00	0.00
1024.00	0.00	1.00	3.00	0.00				0.00	0.00	1.00
1024.00	3.00	1.00	0.00	0.00				0.00	0.00	0.00
1024.00	0.00	-5.00	-3.00	-3.00				-1.00	-1.00	0.00
1024.00										

ID	(QUALITY) Tue 1	(QUALITY) Wed 1	(QUALITY) Thur 1	(QUALITY) Fri 1				(QUALITY) Sat 1	(QUALITY) Sun 1	(QUALITY) Mon 1
1025.00										
1026.00	0.00	1.00	1.00	1.00				0.00		0.00
1026.00	0.00	0.00	0.00	0.00				0.00		0.00
1026.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1026.00										
1028.00	0.00	0.00	0.00					0.00	0.00	0.00
1028.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1028.00	5.00	3.00	1.00	1.00				1.00	0.00	3.00
1028.00										
1030.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1030.00	1.00	1.00	0.00	0.00				0.00	0.00	0.00
1030.00	1.00	0.00	0.00	0.00				0.00	0.00	0.00
1030.00										
1032.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1032.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1032.00	0.00	1.00	0.00	0.00				0.00	0.00	0.00
1032.00										
1033.00	0.00	0.00	1.00	3.00				3.00	-1.00	0.00
1033.00	0.00	0.00	1.00	0.00				-1.00	0.00	0.00
1033.00	-1.00	0.00	-1.00					-1.00	-1.00	-1.00
1033.00										
1034.00	0.00	1.00	1.00	1.00						
1034.00		-1.00	0.00	3.00				1.00	0.00	
1034.00	0.00	-1.00	-1.00					-3.00	1.00	
1034.00										
1035.00	1.00	0.00	1.00	3.00				0.00		0.00
1035.00	0.00	-1.00	0.00	0.00				0.00	0.00	-1.00
1035.00	-1.00	0.00	0.00	-1.00				0.00	0.00	0.00
1035.00										
1036.00		1.00	0.00	0.00				0.00		1.00
1036.00	0.00	1.00	1.00	1.00				1.00	1.00	1.00
1036.00	3.00	1.00	1.00	1.00				-1.00	-1.00	-1.00
1036.00										
1038.00	3.00	3.00	1.00	1.00				-1.00	-1.00	-1.00
1038.00	0.00	0.00	1.00	1.00				1.00	0.00	-1.00
1038.00	0.00	0.00	-1.00	-1.00				0.00	1.00	1.00
1038.00										
1039.00	0.00	0.00	0.00	1.00				0.00		0.00
1039.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1039.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1039.00										
1040.00	0.00	1.00	3.00	3.00				1.00	0.00	0.00
1040.00		1.00		1.00				0.00	0.00	1.00
1040.00	3.00	0.00	0.00	0.00				1.00	0.00	3.00
1040.00										
1041.00	0.00	0.00	0.00	1.00				3.00	5.00	0.00
1041.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1041.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
1041.00										
1042.00	0.00	0.00	1.00	1.00				2.00	1.00	1.00
1042.00		0.00	0.00	1.00				1.00	0.00	-1.00
1042.00	0.00	0.00	0.00	1.00				1.00	0.00	-1.00
1042.00										
1044.00	0.00	1.00	0.00	0.00				0.00	0.00	0.00
1044.00	0.00	0.00	1.00	0.00				0.00	1.00	1.00
1044.00	0.00	0.00	0.00	0.00				0.00	0.00	
1044.00										

ID	(QUANTITY) Tue 1	(QUANTITY) Wed 1	(QUANTITY) Thur 1	(QUANTITY) Fri 1	(QUANTITY) Sat 1	(QUANTITY) Sun 1	(QUANTITY) Mon 1
1001.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1001.00	1.00	2.00	3.00	2.00	2.00	1.00	1.00
1001.00	2.00	1.00	2.00	2.00	2.00	1.00	1.00
1002.00	1.00	1.00	0.00	4.00	0.00	1.00	2.00
1002.00	1.00	1.00	1.00	3.00	1.00	1.00	1.00
1002.00	1.00	1.00	2.00	4.00	2.00	1.00	1.00
1003.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00
1003.00	2.00	3.00	3.00		3.00	2.00	2.00
1003.00	3.00	3.00	2.00	3.00	2.00	2.00	2.00
1004.00	1.00	1.00	2.00	3.00	3.00	2.00	4.00
1004.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1004.00	1.00	1.00		1.00	1.00	1.00	1.00
1005.00	1.00	1.00	1.00	2.00	1.00	3.00	0.00
1005.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00
1005.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1006.00	2.00	2.00	1.00	1.00	0.00	2.00	0.00
1006.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00
1006.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
1007.00	3.00	2.00	3.00	2.00	2.00	5.00	2.00
1007.00	4.00	2.00	2.00	2.00	3.00	2.00	2.00
1007.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
1008.00	3.00	3.00	2.00	2.00	2.00	2.00	1.00
1008.00	2.00	1.00	2.00	2.00	1.00	1.00	3.00
1008.00	2.00	3.00	1.00	1.00	0.00	1.00	1.00
1009.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
1009.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
1009.00	2.00	1.00	2.00	3.00	3.00	2.00	2.00
1010.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1010.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1010.00	1.00	1.00	3.00	5.00	3.00	2.00	3.00
1011.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1011.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1011.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
1011.00							
1016.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
1016.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1016.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00
1017.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00
1017.00	2.00	1.00	1.00	2.00	2.00	1.00	2.00
1017.00	1.00	2.00	1.00	2.00	1.00	1.00	1.00
1017.00							
1019.00	0.00	2.00	1.00	1.00	0.00	1.00	1.00
1019.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1019.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
1020.00	1.00	2.00	4.00	3.00	4.00	4.00	5.00
1020.00	1.00	1.00	4.00	5.00	2.00	1.00	2.00
1020.00	2.00	3.00	1.00	2.00	4.00	3.00	3.00
1021.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1021.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1021.00	1.00	1.00	1.00	0.00	0.00	2.00	0.00
1023.00	3.00	3.00	3.00	3.00	3.00	3.00	4.00
1023.00	1.00	2.00	2.00	1.00	3.00	2.00	1.00
1023.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00
1024.00	1.00	2.00	2.00	0.00	1.00	1.00	2.00
1024.00	1.00	1.00	2.00	1.00	2.00	1.00	1.00
1024.00	1.00	0.00	1.00	2.00	2.00	2.00	1.00
1024.00							

ID	(QUANTITY) Tue 1	(QUANTITY) Wed 1	(QUANTITY) Thur 1	(QUANTITY) Fri 1	(QUANTITY) Sat 1	(QUANTITY) Sun 1	(QUANTITY) Mon 1
1025.00							
1026.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
1026.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
1026.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1026.00							
1028.00	1.00	1.00	1.00	0.00	2.00	1.00	1.00
1028.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
1028.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00
1028.00							
1030.00	3.00	4.00	3.00	3.00	3.00	3.00	3.00
1030.00	2.00	2.00	3.00	3.00	3.00	3.00	3.00
1030.00	2.00	2.00	3.00	2.00	2.00	2.00	3.00
1030.00							
1032.00	2.00	2.00	2.00	1.00	1.00	2.00	1.00
1032.00	1.00	2.00	1.00	2.00	2.00	1.00	1.00
1032.00	2.00	3.00	2.00	2.00	2.00	2.00	2.00
1032.00							
1033.00	1.00	1.00	2.00	4.00	3.00	1.00	2.00
1033.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00
1033.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
1033.00							
1034.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
1034.00	0.00	1.00	1.00	3.00	1.00	1.00	0.00
1034.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
1034.00							
1035.00	2.00	1.00	2.00	1.00	1.00	0.00	2.00
1035.00	2.00	1.00	1.00	1.00	2.00	1.00	1.00
1035.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1035.00							
1036.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
1036.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00
1036.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1036.00							
1038.00	3.00	3.00	2.00	2.00	2.00	2.00	2.00
1038.00	2.00	2.00	3.00	2.00	2.00	3.00	2.00
1038.00	3.00	3.00	4.00	3.00	3.00	1.00	1.00
1038.00							
1039.00	2.00	1.00	1.00	1.00	2.00	0.00	2.00
1039.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00
1039.00	1.00	2.00	1.00	1.00	2.00	1.00	1.00
1039.00							
1040.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1040.00	0.00	1.00	0.00	2.00	1.00	1.00	1.00
1040.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00
1040.00							
1041.00	1.00	1.00	1.00	3.00	4.00	6.00	1.00
1041.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
1041.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1041.00							
1042.00	3.00	2.00	3.00	2.00	3.00	2.00	3.00
1042.00	0.00	3.00	2.00	2.00	3.00	2.00	2.00
1042.00	3.00	2.00	2.00	2.00	3.00	2.00	3.00
1042.00							
1044.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00
1044.00	2.00	2.00	4.00	2.00	2.00	3.00	4.00
1044.00	2.00	2.00	4.00	1.00	2.00	2.00	0.00
1044.00							

ID	(NUMBER) Wed 1	(NUMBER) Thur 1	(NUMBER) Fri 1	(NUMBER) Sat 1	(NUMBER) Sun 1	(NUMBER) Mon 1
1001.00	0.00	0.00	0.00	0.00	0.00	0.00
1001.00	0.00	2.00	0.00	0.00	0.00	0.00
1001.00	0.00	0.00	0.00	0.00	0.00	0.00
1002.00	0.00	-1.00	3.00	-1.00	0.00	1.00
1002.00	0.00	0.00	2.00	0.00	0.00	0.00
1002.00	0.00	1.00	3.00	1.00	0.00	0.00
1003.00	0.00	0.00	0.00	0.00	0.00	1.00
1003.00	0.00	0.00	0.00	0.00	0.00	0.00
1003.00	0.00	0.00	0.00	0.00	0.00	0.00
1004.00	0.00	1.00	1.00	0.00	1.00	3.00
1004.00	0.00	0.00	0.00	0.00	0.00	0.00
1004.00	0.00		0.00	0.00	0.00	0.00
1005.00	0.00	0.00	1.00	0.00	2.00	-1.00
1005.00	0.00	0.00	0.00	0.00	0.00	1.00
1005.00	0.00	0.00	0.00	0.00	0.00	0.00
1006.00	0.00	-1.00	-1.00	-2.00	0.00	-1.00
1006.00	0.00	0.00	0.00	-1.00	0.00	0.00
1006.00	0.00	0.00	-1.00	0.00	0.00	0.00
1007.00	0.00	0.00	0.00	0.00	3.00	0.00
1007.00	0.00	0.00	0.00	1.00	0.00	0.00
1007.00	0.00	0.00	0.00	0.00	0.00	0.00
1008.00	0.00	-1.00	-1.00	-1.00	0.00	1.00
1008.00	0.00	0.00	0.00	-1.00	0.00	1.00
1008.00	1.00	-1.00	-1.00	-2.00	-1.00	-1.00
1009.00	0.00	0.00	0.00	0.00	0.00	0.00
1009.00	0.00	0.00	0.00	0.00	0.00	0.00
1009.00	-1.00	0.00	1.00	1.00	0.00	0.00
1010.00	0.00	0.00	0.00	0.00	0.00	0.00
1010.00	0.00	0.00	0.00	0.00	0.00	0.00
1010.00	0.00	2.00	4.00	2.00	1.00	2.00
1011.00	0.00	0.00	0.00	0.00	0.00	0.00
1011.00	0.00	0.00	0.00	0.00	0.00	0.00
1011.00	1.00	1.00	0.00	0.00	0.00	0.00
1011.00						
1016.00	0.00	0.00	0.00	0.00	0.00	0.00
1016.00	0.00	0.00	0.00	0.00	0.00	0.00
1016.00	0.00	1.00	0.00	0.00	0.00	0.00
1017.00	0.00	0.00	0.00	0.00	0.00	0.00
1017.00	0.00	0.00	0.00	0.00	0.00	1.00
1017.00	0.00	0.00	0.00	0.00	0.00	0.00
1017.00						
1019.00	1.00	0.00	0.00	-5.00	0.00	0.00
1019.00	0.00	0.00	0.00	0.00	0.00	0.00
1019.00	0.00	0.00	0.00	0.00	0.00	0.00
1020.00	1.00	3.00	2.00	3.00	3.00	4.00
1020.00	0.00	2.00	3.00	1.00	0.00	1.00
1020.00	1.00	-1.00	0.00	2.00	1.00	1.00
1021.00	0.00	0.00	0.00	0.00	0.00	0.00
1021.00	0.00	0.00	0.00	0.00	0.00	-1.00
1021.00	0.00	0.00	-1.00	-1.00	1.00	-1.00
1023.00	2.00	2.00	2.00	2.00	2.00	3.00
1023.00	1.00	1.00	0.00	2.00	1.00	0.00
1023.00	0.00	0.00	1.00	0.00	0.00	0.00
1024.00	1.00	1.00	-1.00	0.00	0.00	1.00
1024.00	0.00	0.00	0.00	0.00	0.00	0.00
1024.00	-1.00	0.00	1.00	1.00	1.00	0.00
1024.00						

ID	(NUMBER) Wed 1	(NUMBER) Thur 1	(NUMBER) Fri 1	(NUMBER) Sat 1	(NUMBER) Sun 1	(NUMBER) Mon 1
1025.00						
1026.00	0.00	0.00	0.00	0.00	-1.00	0.00
1026.00	0.00	0.00	0.00	0.00	-1.00	0.00
1026.00	0.00	0.00	0.00	0.00	0.00	0.00
1026.00						
1028.00	0.00	0.00	-1.00	1.00	0.00	0.00
1028.00	0.00	0.00	-1.00	0.00	0.00	0.00
1028.00	1.00	0.00	0.00	0.00	0.00	0.00
1028.00						
1030.00	1.00	0.00	0.00	0.00	0.00	0.00
1030.00	-1.00	0.00	0.00	0.00	0.00	0.00
1030.00	-1.00	0.00	-1.00	-1.00	-1.00	0.00
1030.00						
1032.00	0.00	0.00	0.00	0.00	0.00	0.00
1032.00	0.00	0.00	0.00	0.00	0.00	0.00
1032.00	1.00	0.00	0.00	0.00	0.00	0.00
1032.00						
1033.00	0.00	0.00	3.00	1.00	0.00	0.00
1033.00	0.00	1.00	0.00	0.00	0.00	0.00
1033.00	0.00	-1.00	0.00	0.00	0.00	0.00
1033.00						
1034.00	0.00	0.00	0.00	-1.00	0.00	-1.00
1034.00	0.00	0.00	2.00	0.00	0.00	0.00
1034.00	0.00	0.00	0.00	0.00	0.00	0.00
1034.00						
1035.00	0.00	1.00	0.00	0.00	-1.00	1.00
1035.00	0.00	0.00	0.00	1.00	0.00	0.00
1035.00	0.00	0.00	0.00	0.00	0.00	0.00
1035.00						
1036.00	0.00	0.00	0.00	0.00	-1.00	0.00
1036.00	0.00	0.00	0.00	1.00	1.00	0.00
1036.00	0.00	0.00	0.00	0.00	0.00	0.00
1036.00						
1038.00	2.00	1.00	1.00	1.00	1.00	1.00
1038.00	1.00	2.00	1.00	1.00	2.00	1.00
1038.00	2.00	3.00	2.00	2.00	0.00	-1.00
1038.00						
1039.00	0.00	0.00	0.00	0.00	-1.00	0.00
1039.00	0.00	0.00	0.00	0.00	0.00	0.00
1039.00	0.00	0.00	0.00	0.00	0.00	0.00
1039.00						
1040.00	0.00	0.00	1.00	0.00	0.00	0.00
1040.00	0.00	-1.00	1.00	0.00	0.00	0.00
1040.00	0.00	0.00	0.00	0.00	0.00	1.00
1040.00						
1041.00	0.00	0.00	2.00	3.00	5.00	0.00
1041.00	-2.00	-3.00	-3.00	-3.00	-3.00	-3.00
1041.00	0.00	0.00	0.00	0.00	0.00	0.00
1041.00						
1042.00	-1.00	1.00	-1.00	1.00	-1.00	1.00
1042.00	0.00	0.00	0.00	1.00	0.00	0.00
1042.00	0.00	0.00	0.00	1.00	0.00	1.00
1042.00						
1044.00	0.00	1.00	1.00	0.00	0.00	0.00
1044.00	0.00	2.00	0.00	0.00	1.00	2.00
1044.00	0.00	2.00	-1.00	0.00	0.00	-2.00
1044.00						

ID	(FLATULENCE)Tue1	(FLATULENCE)Wed1	(FLATULENCE)Thur 1	(FLATULENCE)Fri 1	(FLATULENCE)Sat 1	(FLATULENCE)Sun 1	(FLATULENCE)Mon 1
1001.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1001.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00
1001.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1002.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1002.00	0.00	0.00	0.00	2.00	0.00	2.00	2.00
1002.00	0.00	2.00	2.00	4.00	3.00	3.00	4.00
1003.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
1003.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1003.00	0.00	3.00	2.00	3.00	5.00	3.00	3.00
1004.00	0.00	0.00	1.00	2.00	2.00	0.00	0.00
1004.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1004.00	0.00	4.00		4.00	3.00	3.00	3.00
1005.00	0.00	2.00	3.00	3.00	3.00	3.00	0.00
1005.00	4.00	3.00	2.00	1.00	1.00	0.00	0.00
1005.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
1006.00	0.00	2.00	4.00	4.00	4.00	4.00	0.00
1006.00	5.00	4.00	3.00	2.00	2.00	0.00	1.00
1006.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
1007.00	2.00	1.00	0.00	2.00	0.00	0.00	0.00
1007.00	4.00	2.00	1.00	0.00	0.00	0.00	2.00
1007.00	1.00	3.00	2.00	1.00	0.00	0.00	0.00
1008.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00
1008.00	2.00	0.00	0.00	1.00	1.00	0.00	0.00
1008.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
1009.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
1009.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1009.00	0.00	0.00	0.00	1.00	1.00	2.00	0.00
1010.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00
1010.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00
1010.00	0.00	1.00	2.00	3.00	3.00	2.00	2.00
1011.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1011.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1011.00	0.00	2.00	3.00	3.00	3.00	2.00	2.00
1011.00							
1016.00	0.00	3.00	1.00	1.00	1.00	1.00	1.00
1016.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1016.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1017.00	0.00	0.00	4.00	1.00	1.00	0.00	0.00
1017.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
1017.00	0.00	0.00	1.00	0.00	0.00	0.00	2.00
1017.00							
1019.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00
1019.00	2.00	1.00	0.00	0.00	0.00	1.00	1.00
1019.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00
1020.00	0.00	2.00	2.00	2.00	3.00	3.00	2.00
1020.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00
1020.00	0.00	1.00	0.00	1.00	2.00	0.00	2.00
1021.00	4.00	1.00	0.00	0.00	0.00	0.00	0.00
1021.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
1021.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1023.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1023.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
1023.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00
1024.00	0.00	2.00	1.00	0.00	0.00	0.00	1.00
1024.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1024.00	0.00	0.00	2.00	2.00	1.00	0.00	2.00
1024.00							

ID	(FLATULENCE)Tue1	(FLATULENCE)Wed1	(FLATULENCE)Thur 1	(FLATULENCE)Fri 1	(FLATULENCE)Sat 1	(FLATULENCE)Sun 1	(FLATULENCE)Mon 1
1025.00							
1026.00	0.00	1.00	1.00	1.00	2.00	2.00	1.00
1026.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
1026.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1026.00							
1028.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1028.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1028.00	4.00	4.00	3.00	3.00	2.00	2.00	1.00
1028.00							
1030.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
1030.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00
1030.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
1030.00							
1032.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1032.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1032.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00
1032.00							
1033.00	0.00	1.00	0.00	1.00	4.00	2.00	0.00
1033.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
1033.00	2.00	0.00	0.00	0.00	1.00	0.00	0.00
1033.00							
1034.00	4.00	3.00	3.00	1.00	1.00	3.00	3.00
1034.00	1.00	0.00	2.00	4.00	1.00	0.00	0.00
1034.00	1.00	1.00	2.00	2.00	2.00	1.00	2.00
1034.00							
1035.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00
1035.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00
1035.00	2.00	1.00	1.00	1.00	2.00	1.00	2.00
1035.00							
1036.00		0.00	0.00	0.00	1.00	0.00	0.00
1036.00	0.00	0.00	3.00	2.00	2.00	2.00	1.00
1036.00	3.00	3.00	3.00	4.00	3.00	3.00	2.00
1036.00							
1038.00	5.00	5.00	4.00	1.00	0.00	0.00	0.00
1038.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00
1038.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00
1038.00							
1039.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
1039.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
1039.00	0.00	0.00	1.00	2.00	1.00	0.00	1.00
1039.00							
1040.00		0.00	5.00	2.00	0.00	0.00	0.00
1040.00	2.00	0.00	3.00	1.00	0.00	0.00	0.00
1040.00	0.00	1.00	1.00	0.00	0.00	0.00	4.00
1040.00							
1041.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
1041.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1041.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1041.00							
1042.00	3.00	3.00	2.00	3.00	3.00	1.00	3.00
1042.00	3.00	3.00	1.00	0.00	2.00	1.00	0.00
1042.00	0.00	2.00	0.00	1.00	2.00	1.00	2.00
1042.00							
1044.00	0.00	1.00	0.00	0.00	0.00	2.00	1.00
1044.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
1044.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1044.00							

ID	(BM)Tue 2	(BM)Wed 2	(BM)Thur 2	(BM)Fri 2	(BM)Sat 2	(BM)Sun 2	(BM)Mon 2
1001.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1001.00	0.00	-1.00	-1.00	0.00	0.00	0.00	0.00
1001.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1002.00	0.00	-3.00	0.00	0.00	0.00	0.00	0.00
1002.00	1.00	-2.00	0.00	0.00	0.00	0.00	0.00
1002.00	1.00	-1.00	0.00	0.00	0.00	0.00	0.00
1003.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1003.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1003.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
1004.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1004.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1004.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1005.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1005.00	0.00	0.00	0.00	0.00	-1.00	0.00	3.00
1005.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
1006.00	0.00	0.00	0.00	-1.00	0.00	0.00	0.00
1006.00	0.00		0.00		0.00	0.00	0.00
1006.00	0.00	0.00	0.00	0.00	0.00		0.00
1007.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00
1007.00	0.00	0.00	0.00	0.00	0.00	-1.00	-1.00
1007.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1008.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1008.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1008.00	0.00	0.00	0.00	0.00	0.00		0.00
1009.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
1009.00	0.00	-1.00	0.00	1.00	0.00	0.00	0.00
1009.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1010.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1010.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1010.00	4.00	4.00	3.00	1.00	2.00	1.00	-3.00
1011.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
1011.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1011.00	0.00	0.00	0.00	1.00	3.00	3.00	0.00
1011.00							
1016.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1016.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
1016.00	0.00	0.00	0.00	-1.00	0.00	0.00	1.00
1017.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1017.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1017.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
1017.00							
1019.00	3.00	1.00	-5.00	1.00	2.00	2.00	0.00
1019.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1019.00	0.00	4.00	4.00	2.00	2.00	1.00	1.00
1020.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
1020.00	-1.00	0.00	1.00	1.00	0.00	0.00	0.00
1020.00	0.00	3.00	0.00	0.00	0.00	-1.00	-1.00
1021.00	1.00	0.00	0.00	0.00	2.00	3.00	0.00
1021.00	0.00	1.00	0.00	0.00	0.00	-1.00	-1.00
1021.00	-1.00	0.00	-1.00	3.00	0.00	-1.00	-4.00
1023.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00
1023.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
1023.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00
1024.00	0.00	0.00	0.00	1.00	0.00	-2.00	0.00
1024.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
1024.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1024.00							

ID	(BM)Tue 2	(BM)Wed 2	(BM)Thur 2	(BM)Fri 2	(BM)Sat 2	(BM)Sun 2	(BM)Mon 2
1025.00							
1026.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1026.00	2.00	0.00	0.00	0.00	0.00		0.00
1026.00	0.00	0.00	0.00	0.00	0.00		0.00
1026.00							
1028.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1028.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1028.00	0.00	1.00	0.00	0.00	1.00	0.00	
1028.00							
1030.00	3.00	1.00	0.00	0.00	0.00	0.00	0.00
1030.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
1030.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1030.00							
1032.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1032.00	0.00	0.00	0.00	0.00	1.00	-1.00	-1.00
1032.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1032.00							
1033.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00
1033.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
1033.00	0.00	0.00	0.00	0.00	-2.00	1.00	-1.00
1033.00							
1034.00	3.00	3.00	0.00			-1.00	0.00
1034.00	-1.00	-1.00		0.00	0.00		
1034.00	0.00	-1.00		0.00	-1.00	-1.00	
1034.00							
1035.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1035.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1035.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1035.00							
1036.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1036.00	0.00	0.00	0.00	0.00	0.00		0.00
1036.00	0.00	3.00	1.00	0.00	0.00	-1.00	
1036.00							
1038.00	1.00	1.00	1.00	2.00	1.00	2.00	2.00
1038.00	-2.00	-1.00	-1.00	0.00	-1.00	-1.00	0.00
1038.00	2.00	1.00	1.00	1.00	1.00	1.00	3.00
1038.00							
1039.00	0.00	0.00	0.00	0.00	0.00	0.00	
1039.00	0.00	0.00	0.00		0.00	0.00	1.00
1039.00	0.00	1.00	0.00	0.00	0.00		0.00
1039.00							
1040.00	3.00	4.00	0.00	0.00	0.00		-3.00
1040.00	0.00	0.00	0.00	-5.00	0.00	0.00	0.00
1040.00	1.00	0.00	0.00	0.00	0.00	1.00	
1040.00							
1041.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1041.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1041.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1041.00							
1042.00	0.00	0.00	0.00	0.00	0.00	-1.00	0.00
1042.00	0.00	-1.00	0.00	0.00	1.00	0.00	-1.00
1042.00	0.00	-1.00	0.00	0.00	2.00	1.00	3.00
1042.00							
1044.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1044.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1044.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
1044.00							

ID	(QUALITY) Wed 2	(QUALITY) Thur 2	(QUALITY) Fri 2	(QUALITY) Sat 2	(QUALITY) Sun 2		(QUALITY) Mon 2
1001.00	0.00	0.00	0.00	0.00	0.00		0.00
1001.00	0.00	-1.00	-1.00	0.00	0.00		0.00
1001.00	1.00	0.00	0.00	0.00	0.00		0.00
1002.00		0.00	0.00	0.00	0.00		0.00
1002.00	-1.00	0.00	0.00	0.00	0.00		0.00
1002.00	-1.00	0.00	0.00	0.00	0.00		1.00
1003.00	0.00	0.00	0.00	0.00	10.00		0.00
1003.00	0.00	0.00	0.00	0.00	0.00		0.00
1003.00	0.00	0.00	0.00	0.00	0.00		0.00
1004.00	0.00	0.00	0.00	0.00	0.00		0.00
1004.00	0.00	0.00	0.00	0.00	0.00		0.00
1004.00	-1.00	-1.00	-1.00	-1.00	-1.00		-1.00
1005.00	0.00	0.00	0.00	0.00	0.00		0.00
1005.00	-1.00	-1.00	-1.00	-1.00	0.00		3.00
1005.00	-1.00	-1.00	-1.00	-1.00	-1.00		
1006.00	1.00	1.00	-1.00	0.00			0.00
1006.00		1.00		1.00	1.00		1.00
1006.00	1.00	0.00	1.00	0.00			
1007.00	0.00	1.00	1.00	0.00	1.00		1.00
1007.00	0.00	0.00	0.00	0.00	0.00		0.00
1007.00	0.00	0.00	0.00	0.00	0.00		0.00
1008.00	0.00	0.00	1.00	1.00	1.00		1.00
1008.00	0.00	0.00		0.00	0.00		0.00
1008.00	0.00	0.00	0.00	0.00			0.00
1009.00	0.00	0.00	0.00	0.00	1.00		0.00
1009.00	-1.00	0.00	1.00	0.00	0.00		0.00
1009.00	0.00	0.00	0.00	0.00	0.00		0.00
1010.00	0.00	0.00	0.00	0.00	-1.00		-1.00
1010.00	0.00	-1.00	-1.00	0.00	0.00		0.00
1010.00	3.00	3.00	1.00	1.00	1.00		
1011.00	0.00	0.00	0.00	1.00	0.00		0.00
1011.00	-1.00	-1.00	-1.00	-1.00	-3.00		0.00
1011.00	0.00	0.00	0.00	3.00	3.00		1.00
1011.00							
1016.00	0.00	0.00	0.00	0.00	0.00		0.00
1016.00	1.00	0.00	1.00	1.00	0.00		0.00
1016.00	0.00	0.00	0.00	0.00	0.00		1.00
1017.00	0.00	0.00	0.00	1.00	0.00		2.00
1017.00	0.00	0.00	0.00	0.00	0.00		0.00
1017.00	5.00	3.00	1.00	0.00	1.00		1.00
1017.00							
1019.00	1.00	0.00	3.00	3.00	1.00		0.00
1019.00	0.00	0.00	0.00	0.00	0.00		0.00
1019.00	5.00	5.00	3.00	3.00	1.00		1.00
1020.00	1.00	0.00	1.00	1.00	0.00		1.00
1020.00	1.00	3.00	1.00	0.00	0.00		1.00
1020.00	3.00	0.00	0.00	0.00	-1.00		-1.00
1021.00	0.00	1.00	0.00	1.00	3.00		0.00
1021.00	1.00	0.00	0.00	0.00	-1.00		-1.00
1021.00	1.00	0.00	3.00	0.00	-1.00		-5.00
1023.00	0.00	0.00	0.00	1.00	1.00		0.00
1023.00	0.00	0.00	1.00	0.00	0.00		0.00
1023.00	0.00	0.00	1.00	1.00	0.00		0.00
1024.00	0.00	1.00	1.00	0.00	-5.00		3.00
1024.00	0.00	0.00	0.00	3.00	0.00		0.00
1024.00	0.00	0.00	0.00	0.00	0.00		0.00
1024.00							

ID	(QUALITY) Wed 2	(QUALITY) Thur 2	(QUALITY) Fri 2	(QUALITY) Sat 2	(QUALITY) Sun 2		(QUALITY) Mon 2
1025.00							
1026.00	0.00	1.00	0.00	0.00			1.00
1026.00	0.00	0.00	0.00	0.00			3.00
1026.00	0.00	0.00	0.00	0.00			0.00
1026.00							
1028.00	0.00	0.00	0.00	0.00	0.00		
1028.00	0.00	0.00	0.00	0.00			0.00
1028.00	1.00	0.00	0.00	1.00	0.00		0.00
1028.00							
1030.00	1.00	0.00	0.00	0.00	0.00		1.00
1030.00	0.00	0.00	0.00	0.00	1.00		1.00
1030.00	0.00	1.00	1.00	0.00	0.00		0.00
1030.00							
1032.00	0.00	0.00	0.00	0.00	0.00		0.00
1032.00	0.00	0.00	0.00	0.00	0.00		0.00
1032.00	0.00	0.00	0.00	0.00	0.00		0.00
1032.00							
1033.00	-1.00	-1.00	0.00	0.00	0.00		0.00
1033.00	0.00	0.00	0.00	1.00	0.00		0.00
1033.00	0.00	0.00	-1.00	-5.00	1.00		
1033.00							
1034.00	3.00	0.00			0.00		0.00
1034.00	0.00		0.00	0.00			
1034.00	-1.00		0.00	-5.00	-3.00		
1034.00							
1035.00	1.00	1.00	0.00	0.00	0.00		0.00
1035.00	0.00	0.00	0.00	0.00	0.00		0.00
1035.00	0.00	-1.00	0.00	0.00	0.00		-1.00
1035.00							
1036.00	0.00	2.00	2.00	1.00	1.00		0.00
1036.00	0.00	0.00	0.00	0.00			-1.00
1036.00	5.00	-1.00	-1.00	0.00	-1.00	-5.00	
1036.00							
1038.00	1.00	1.00	3.00	1.00	3.00		3.00
1038.00	1.00	0.00	3.00	1.00	0.00		1.00
1038.00	0.00	1.00	1.00	1.00	3.00	5.00	
1038.00							
1039.00	0.00	0.00	0.00		0.00		
1039.00	0.00	0.00		0.00	0.00		1.00
1039.00	0.00	0.00	0.00	-1.00	0.00		0.00
1039.00							
1040.00	5.00	1.00	1.00	0.00			-3.00
1040.00	0.00	0.00		0.00	0.00		0.00
1040.00		1.00	1.00	1.00	3.00		
1040.00							
1041.00	0.00	0.00	0.00	0.00	0.00		0.00
1041.00	0.00	0.00	0.00	0.00	0.00		0.00
1041.00	0.00	0.00	0.00	0.00	0.00		0.00
1041.00							
1042.00	0.00	0.00	0.00	0.00	0.00		0.00
1042.00	-1.00	0.00	1.00	1.00			0.00
1042.00	-1.00	0.00	0.00	1.00	0.00		3.00
1042.00							
1044.00	0.00	0.00	0.00	0.00	0.00		0.00
1044.00	1.00	0.00	0.00	0.00	0.00		0.00
1044.00	0.00	0.00	0.00	1.00	0.00		
1044.00							

ID	(QUANTITY) Wed 2	(QUANTITY) Thur 2	(QUANTITY) Fri 2	(QUANTITY) Sat 2	(QUANTITY) Sun 2	(QUANTITY) Mon 2
1001.00	1.00	1.00	1.00	2.00	1.00	1.00
1001.00	1.00	1.00	2.00	1.00	1.00	1.00
1001.00	1.00	1.00	1.00	1.00	1.00	1.00
1002.00	0.00	1.00	1.00	1.00	1.00	1.00
1002.00	2.00	1.00	1.00	1.00	1.00	1.00
1002.00	1.00	2.00	1.00	1.00	2.00	1.00
1003.00	2.00	3.00	2.00	3.00	3.00	3.00
1003.00	3.00	2.00	2.00	3.00	2.00	2.00
1003.00	2.00	3.00	2.00	3.00	3.00	3.00
1004.00	1.00	1.00	1.00	0.00	2.00	1.00
1004.00	0.00	0.00	0.00	0.00	0.00	0.00
1004.00	1.00	1.00	1.00	1.00	1.00	1.00
1005.00	1.00	1.00	1.00	1.00	1.00	2.00
1005.00	2.00	2.00	1.00	1.00	1.00	2.00
1005.00	1.00	1.00	1.00	1.00	1.00	
1006.00	1.00	1.00	1.00	1.00	0.00	1.00
1006.00	0.00	1.00	0.00	1.00	1.00	1.00
1006.00	2.00	1.00	1.00	1.00	0.00	
1007.00	3.00	4.00	2.00	3.00	2.00	2.00
1007.00	3.00	2.00	2.00	2.00	2.00	2.00
1007.00	2.00	2.00	2.00	3.00	1.00	2.00
1008.00	1.00	2.00	1.00	1.00	2.00	1.00
1008.00	2.00	1.00	0.00	1.00	1.00	1.00
1008.00	1.00	2.00	3.00	2.00	0.00	1.00
1009.00	2.00	2.00	2.00	1.00	1.00	1.00
1009.00	2.00	2.00	3.00	1.00	2.00	2.00
1009.00	3.00	3.00	1.00	3.00	2.00	2.00
1010.00	1.00	1.00	1.00	1.00	1.00	1.00
1010.00	1.00	1.00	1.00	1.00	1.00	1.00
1010.00	5.00	3.00	1.00	3.00	1.00	0.00
1011.00	1.00	1.00	1.00	2.00	1.00	1.00
1011.00	2.00	2.00	2.00	2.00	2.00	2.00
1011.00	1.00	1.00	1.00	3.00	1.00	1.00
1011.00						
1016.00	1.00	1.00	2.00	1.00	1.00	1.00
1016.00	1.00	1.00	1.00	2.00	1.00	1.00
1016.00	1.00	1.00	1.00	1.00	1.00	1.00
1017.00	1.00	2.00	1.00	1.00	2.00	1.00
1017.00	1.00	1.00	1.00	1.00	2.00	2.00
1017.00	2.00	1.00	1.00	1.00	1.00	1.00
1017.00						
1019.00	1.00	0.00	1.00	1.00	1.00	1.00
1019.00	1.00	1.00	1.00	1.00	1.00	1.00
1019.00	1.00	1.00	1.00	1.00	1.00	1.00
1020.00	2.00	2.00	4.00	4.00	1.00	2.00
1020.00	4.00	4.00	4.00	2.00	2.00	1.00
1020.00	6.00	1.00	2.00	2.00	2.00	1.00
1021.00	1.00	2.00	1.00	4.00	4.00	1.00
1021.00	2.00	1.00	1.00	1.00	1.00	1.00
1021.00	2.00	1.00	3.00	1.00	0.00	0.00
1023.00	2.00	2.00	2.00	2.00	2.00	2.00
1023.00	1.00	1.00	2.00	1.00	1.00	1.00
1023.00	2.00	1.00	1.00	3.00	1.00	2.00
1024.00	1.00	2.00	2.00	2.00	1.00	1.00
1024.00	1.00	1.00	2.00	1.00	1.00	1.00
1024.00	1.00	3.00	2.00	1.00	1.00	1.00
1024.00						

ID	(QUANTITY) Wed 2	(QUANTITY) Thur 2	(QUANTITY) Fri 2	(QUANTITY) Sat 2	(QUANTITY) Sun 2	(QUANTITY) Mon 2
1025.00						
1026.00	1.00	1.00	1.00	1.00	0.00	1.00
1026.00	1.00	1.00	1.00	1.00	0.00	1.00
1026.00	1.00	1.00	1.00	1.00	0.00	1.00
1026.00						
1028.00	1.00	1.00	1.00	1.00	1.00	0.00
1028.00	1.00	1.00	1.00	1.00	0.00	2.00
1028.00	1.00	1.00	1.00	1.00	1.00	0.00
1028.00						
1030.00	4.00	4.00	3.00	3.00	2.00	1.00
1030.00	4.00	3.00	3.00	3.00	2.00	3.00
1030.00	2.00	3.00	5.00	3.00	2.00	2.00
1030.00						
1032.00	2.00	2.00	2.00	1.00	1.00	1.00
1032.00	1.00	1.00	1.00	1.00	1.00	1.00
1032.00	2.00	1.00	2.00	2.00	1.00	2.00
1032.00						
1033.00	1.00	2.00	2.00	1.00	1.00	1.00
1033.00	1.00	2.00	1.00	1.00	1.00	1.00
1033.00	1.00	1.00	2.00	4.00	1.00	0.00
1033.00						
1034.00	1.00	1.00	0.00	0.00	1.00	1.00
1034.00	1.00	0.00	1.00	2.00	0.00	0.00
1034.00	1.00	0.00	2.00	1.00	1.00	0.00
1034.00						
1035.00	1.00	3.00	1.00	2.00	1.00	3.00
1035.00	1.00	1.00	1.00	1.00	1.00	1.00
1035.00	1.00	1.00	1.00	1.00	1.00	2.00
1035.00						
1036.00	1.00	1.00	1.00	1.00	1.00	1.00
1036.00	1.00	1.00	1.00	1.00	0.00	1.00
1036.00	3.00	1.00	1.00	1.00	2.00	0.00
1036.00						
1038.00	1.00	1.00	1.00	1.00	1.00	1.00
1038.00	1.00	1.00	2.00	1.00	1.00	1.00
1038.00	1.00	1.00	1.00	1.00	1.00	2.00
1038.00						
1039.00	1.00	2.00	1.00	0.00	3.00	0.00
1039.00	2.00	1.00	0.00	1.00	1.00	1.00
1039.00	2.00	2.00	1.00	1.00	0.00	1.00
1039.00						
1040.00	1.00	1.00	1.00	1.00	0.00	1.00
1040.00	1.00	1.00	0.00	1.00	1.00	1.00
1040.00	0.00	1.00	1.00	2.00	1.00	0.00
1040.00						
1041.00	1.00	1.00	1.00	1.00	1.00	1.00
1041.00						
1041.00	1.00	1.00	1.00	1.00	1.00	1.00
1041.00						
1042.00	2.00	2.00	2.00	2.00	1.00	2.00
1042.00	2.00	2.00	2.00	3.00	0.00	2.00
1042.00	3.00	2.00	2.00	4.00	1.00	3.00
1042.00						
1044.00	3.00	2.00	3.00	2.00	1.00	1.00
1044.00	2.00	2.00	2.00	3.00	3.00	1.00
1044.00	2.00	3.00	1.00	2.00	3.00	0.00
1044.00						

ID	(NUMBER) Tue 2	(NUMBER) Wed 2	(NUMBER) Thur 2	(NUMBER) Fri 2	(NUMBER) Sat 2	(NUMBER) Sun 2	(NUMBER) Mon 2
1001.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
1001.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1001.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1002.00	0.00	-1.00	0.00	0.00	0.00	0.00	0.00
1002.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
1002.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
1003.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00
1003.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1003.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00
1004.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1004.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1004.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1005.00	1.00	0.00	0.00	0.00	0.00	0.00	2.00
1005.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00
1005.00	0.00	0.00	0.00	0.00	0.00	0.00	
1006.00	0.00	0.00	0.00	0.00	0.00	-1.00	0.00
1006.00	0.00	-1.00	0.00	-1.00	0.00	0.00	0.00
1006.00	0.00	1.00	0.00	0.00	0.00	-1.00	
1007.00	0.00	1.00	2.00	0.00	1.00	0.00	0.00
1007.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1007.00	-1.00	-1.00	0.00	0.00	1.00	-1.00	0.00
1008.00	-1.00	-1.00	0.00	-1.00	-1.00	0.00	-1.00
1008.00	0.00	0.00	0.00	-1.00	-1.00	-1.00	-1.00
1008.00	0.00	-1.00	0.00	1.00	0.00	-2.00	-1.00
1009.00	0.00	0.00	0.00	0.00	-1.00	-1.00	-1.00
1009.00	0.00	0.00	0.00	1.00	-1.00	0.00	0.00
1009.00	0.00	1.00	1.00	-1.00	1.00	0.00	0.00
1010.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1010.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1010.00	4.00	4.00	2.00	0.00	2.00	0.00	-1.00
1011.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1011.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1011.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00
1011.00							
1016.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1016.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
1016.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1017.00	0.00	-1.00	0.00	0.00	0.00	0.00	0.00
1017.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1017.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1017.00							
1019.00	0.00	0.00	-1.00	0.00	0.00	0.00	0.00
1019.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1019.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1020.00	3.00	2.00	2.00	4.00	4.00	1.00	2.00
1020.00	1.00	3.00	3.00	3.00	1.00	1.00	0.00
1020.00	1.00	4.00	-1.00	0.00	0.00	0.00	-1.00
1021.00	1.00	0.00	1.00	0.00	2.00	2.00	0.00
1021.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
1021.00	0.00	1.00	0.00	2.00	0.00	-1.00	-1.00
1023.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1023.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
1023.00	1.00	1.00	0.00	0.00	2.00	0.00	1.00
1024.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00
1024.00	2.00	0.00	0.00	1.00	0.00	0.00	0.00
1024.00	0.00	0.00	2.00	1.00	0.00	0.00	0.00
1024.00							

ID	(NUMBER) Tue 2	(NUMBER) Wed 2	(NUMBER) Thur 2	(NUMBER) Fri 2	(NUMBER) Sat 2	(NUMBER) Sun 2	(NUMBER) Mon 2
1025.00							
1026.00	1.00	0.00	0.00	0.00	0.00	-1.00	0.00
1026.00	0.00	0.00	0.00	0.00	0.00	-1.00	0.00
1026.00	0.00	0.00	0.00	0.00	0.00	-1.00	0.00
1026.00							
1028.00	0.00	0.00	0.00	0.00	0.00	0.00	-1.00
1028.00	1.00	0.00	0.00	0.00	0.00	-1.00	1.00
1028.00	0.00	0.00	0.00	0.00	0.00	0.00	-1.00
1028.00							
1030.00	2.00	1.00	1.00	0.00	0.00	-1.00	-2.00
1030.00	1.00	1.00	0.00	0.00	0.00	-2.00	0.00
1030.00	0.00	-1.00	0.00	2.00	0.00	-1.00	-1.00
1030.00							
1032.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1032.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1032.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1032.00							
1033.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1033.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00
1033.00	0.00	0.00	0.00	1.00	3.00	0.00	-1.00
1033.00							
1034.00	1.00	0.00	0.00	-1.00	-1.00	0.00	0.00
1034.00	0.00	0.00	0.00	0.00	1.00	0.00	-1.00
1034.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
1034.00							
1035.00	1.00	1.00	2.00	0.00	1.00	0.00	2.00
1035.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
1035.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
1035.00							
1036.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1036.00	0.00	0.00	0.00	0.00	0.00	-1.00	0.00
1036.00	0.00	2.00	0.00	0.00	0.00	1.00	-1.00
1036.00							
1038.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1038.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
1038.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
1038.00							
1039.00	1.00	0.00	0.00	0.00	-1.00	1.00	-1.00
1039.00	0.00	0.00	0.00	-1.00	0.00	0.00	0.00
1039.00	0.00	0.00	0.00	0.00	0.00	-1.00	0.00
1039.00							
1040.00	2.00	0.00	0.00	0.00	0.00	-1.00	0.00
1040.00	0.00	0.00	0.00	-1.00	0.00	0.00	0.00
1040.00	0.00	-1.00	0.00	0.00	1.00	0.00	-1.00
1040.00							
1041.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1041.00	-3.00	-3.00	-3.00	-3.00	-3.00	-3.00	-3.00
1041.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1041.00							
1042.00	1.00	0.00	0.00	0.00	0.00	-1.00	0.00
1042.00	0.00	0.00	0.00	0.00	1.00	-2.00	0.00
1042.00	0.00	1.00	0.00	0.00	2.00	0.00	1.00
1042.00							
1044.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
1044.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00
1044.00	1.00	0.00	1.00	0.00	0.00	1.00	-2.00
1044.00							

ID	(FLATULENCE)Wed 2	(FLATULENCE)Thur 2	(FLATULENCE)Fri 2	(FLATULENCE)Sat 2	(FLATULENCE)Sun 2	(FLATULENCE)Mon 2
1001.00	0.00	0.00	0.00	3.00	0.00	0.00
1001.00	0.00	0.00	0.00	0.00	0.00	0.00
1001.00	3.00	3.00	0.00	0.00	0.00	0.00
1002.00	0.00	0.00	0.00	0.00	0.00	0.00
1002.00	1.00	0.00	0.00	0.00	0.00	0.00
1002.00	3.00	2.00	1.00	2.00	2.00	1.00
1003.00	0.00	0.00	0.00	0.00	0.00	0.00
1003.00	0.00	0.00	0.00	0.00	0.00	0.00
1003.00	3.00	4.00	3.00	3.00	2.00	1.00
1004.00	0.00	0.00	0.00	0.00	0.00	0.00
1004.00	0.00	0.00	0.00	0.00	0.00	0.00
1004.00	3.00	3.00	3.00	3.00	4.00	
1005.00	3.00	2.00	2.00	2.00	2.00	3.00
1005.00	1.00	0.00	1.00	1.00	1.00	2.00
1005.00	2.00	2.00	3.00	2.00	2.00	
1006.00	4.00	3.00	3.00	4.00	4.00	4.00
1006.00	1.00	2.00	0.00	0.00	0.00	0.00
1006.00	0.00	0.00	0.00	0.00	0.00	0.00
1007.00	1.00	2.00	2.00	2.00	2.00	4.00
1007.00	0.00	0.00	0.00	0.00	0.00	0.00
1007.00	0.00	0.00	0.00	0.00	0.00	0.00
1008.00	0.00	0.00	1.00	1.00	0.00	0.00
1008.00	0.00	0.00	1.00	0.00	0.00	0.00
1008.00	1.00	2.00	2.00	2.00	1.00	1.00
1009.00	1.00	0.00	0.00	0.00	0.00	0.00
1009.00	1.00	0.00	0.00	0.00	0.00	0.00
1009.00	0.00	1.00	0.00	0.00	2.00	2.00
1010.00	0.00	1.00	2.00	1.00	2.00	2.00
1010.00	0.00	0.00	0.00	0.00	0.00	0.00
1010.00	3.00	3.00	1.00	1.00	1.00	1.00
1011.00	0.00	0.00	0.00	2.00	0.00	0.00
1011.00	0.00	0.00	0.00	0.00	0.00	2.00
1011.00	0.00	0.00	0.00	2.00	1.00	0.00
1011.00						
1016.00	1.00	0.00	0.00	0.00	0.00	0.00
1016.00	0.00	0.00	0.00	0.00	0.00	0.00
1016.00	0.00	0.00	0.00	0.00	1.00	0.00
1017.00	0.00	1.00	2.00	3.00	1.00	1.00
1017.00	0.00	0.00	0.00	2.00	0.00	0.00
1017.00	3.00	1.00	0.00	0.00	4.00	1.00
1017.00						
1019.00	1.00	3.00	3.00	3.00	2.00	1.00
1019.00	0.00	0.00	0.00	0.00	0.00	0.00
1019.00	0.00	1.00	1.00	1.00	1.00	1.00
1020.00	2.00	2.00	3.00	3.00	0.00	2.00
1020.00	1.00	1.00	1.00	0.00	1.00	0.00
1020.00	3.00	0.00	0.00	0.00	1.00	0.00
1021.00	0.00	0.00	0.00	0.00	0.00	0.00
1021.00	1.00	0.00	0.00	0.00	0.00	0.00
1021.00	0.00	0.00	3.00	0.00	0.00	4.00
1023.00	0.00	0.00	0.00	1.00	0.00	1.00
1023.00	0.00	1.00	1.00	0.00	0.00	0.00
1023.00	0.00	1.00	2.00	2.00	0.00	0.00
1024.00	0.00	1.00	1.00	2.00	3.00	0.00
1024.00	0.00	1.00	1.00	2.00	0.00	0.00
1024.00	2.00	4.00	0.00	1.00	3.00	0.00
1024.00						

ID	(FLATULENCE)Wed 2	(FLATULENCE)Thur 2	(FLATULENCE)Fri 2	(FLATULENCE)Sat 2	(FLATULENCE)Sun 2	(FLATULENCE)Mon 2
1025.00						
1026.00	0.00	1.00	0.00	0.00	1.00	0.00
1026.00	0.00	0.00	0.00	0.00	0.00	0.00
1026.00	0.00	0.00	0.00	0.00	0.00	0.00
1026.00						
1028.00	0.00	0.00	0.00	0.00	0.00	0.00
1028.00	0.00	0.00	0.00	0.00	0.00	1.00
1028.00	1.00	1.00	1.00	1.00	1.00	1.00
1028.00						
1030.00	0.00	0.00	0.00	0.00	0.00	0.00
1030.00	1.00	0.00	0.00	0.00	0.00	0.00
1030.00	0.00	1.00	2.00	0.00	0.00	0.00
1030.00						
1032.00	2.00	0.00	0.00	0.00	0.00	0.00
1032.00	0.00	0.00	1.00	0.00	1.00	1.00
1032.00	1.00	2.00	0.00	1.00	1.00	1.00
1032.00						
1033.00	0.00	0.00	2.00	3.00	3.00	2.00
1033.00	0.00	0.00	0.00	0.00	0.00	0.00
1033.00	0.00	0.00	1.00	4.00	3.00	0.00
1033.00						
1034.00	3.00	1.00	1.00	2.00	1.00	0.00
1034.00	0.00	0.00	1.00	1.00	0.00	1.00
1034.00	2.00	1.00	1.00	1.00	2.00	1.00
1034.00						
1035.00	2.00	1.00	1.00	1.00	1.00	2.00
1035.00	0.00	0.00	0.00	0.00	0.00	0.00
1035.00	1.00	2.00	2.00	1.00	1.00	
1035.00						
1036.00	0.00	2.00	2.00	1.00	0.00	0.00
1036.00	2.00	2.00	2.00	3.00	3.00	2.00
1036.00	3.00	2.00	2.00	3.00	2.00	1.00
1036.00						
1038.00	0.00	0.00	1.00	0.00	1.00	1.00
1038.00	1.00	0.00	2.00	1.00	0.00	0.00
1038.00	1.00	2.00	1.00	2.00	3.00	4.00
1038.00						
1039.00	0.00	1.00	0.00	0.00	1.00	0.00
1039.00	0.00	1.00	0.00	0.00	0.00	1.00
1039.00	0.00	1.00	1.00	1.00	0.00	1.00
1039.00						
1040.00	5.00	1.00	0.00	0.00	0.00	0.00
1040.00	0.00	0.00	0.00	2.00	0.00	0.00
1040.00	2.00	0.00	0.00	3.00	5.00	2.00
1040.00						
1041.00	0.00	0.00	0.00	0.00	1.00	0.00
1041.00	0.00	0.00	0.00	0.00	0.00	0.00
1041.00	0.00	0.00	0.00	0.00	0.00	0.00
1041.00						
1042.00	2.00	2.00	3.00	4.00	3.00	2.00
1042.00	0.00	1.00	1.00	2.00	0.00	0.00
1042.00	1.00	2.00	1.00	3.00	1.00	2.00
1042.00						
1044.00	1.00	0.00	0.00	0.00	0.00	1.00
1044.00	0.00	0.00	0.00	0.00	1.00	1.00
1044.00	1.00	1.00	0.00	0.00	0.00	0.00
1044.00						