The Utah Climate Center
From hundreds of locations around the state, electronic sentinels and dedicated weather observers funnel prodigious amounts of weather-related information to the Utah Climate Center, where it is put in a form for use in research and commerce.

Program Provides Information About Benefits of Pesticide Use
In spite of the negative publicity about the consequences of pesticide use, it's important to remember that pesticides provide real and substantial benefits. Here's a program that makes sure that these benefits are considered when regulatory agencies evaluate pesticides.

Research in Brief

Gender and Housework: Traditional Roles Persist
There have been sea changes in the search for gender equity in the workplace. On the home front, however, it appears that women still do most of the housework. Sociologists studying the allocation of housework are still trying to come up with a satisfactory explanation.

Families Still Share Some Meals
Over the past few decades, research has indicated that families eat fewer meals together. Some analysts predicted that family mealtimes might vanish. A recent study indicates that families spend more money at restaurants, but there's been no further erosion in the habit of eating together.

The Role of the Land Grant University in Management of Public Lands—Land Grant Days 1993
The topic this year concerns one of the most important issues confronting USU and the state.
The Utah Climate Center

There's valuable information in yesterday's weather.

Most of us live at arm's length from the weather. We glimpse it through windows and windshields or on the evening news, after it has been suitably embellished with special effects and laced with hyperbole.

All of us harbor more than a passing interest in the weather. Entertaining weather
forecasts boost ratings, which may explain why weather records tumble frequently on television. Nearly every day, it seems, it has been exceptionally dry, wet, hot, cold, or windy somewhere in the state.

The truth is far more mundane. Records may fall, but they tend to be *small* records, dealing with a relatively short period of time or a small geographical region. These records mirror a short attention span rather than the grand sweep of history.

"The current weather is consistent with weather patterns for the last 100 years," says state climatologist Donald Jensen, director of the Utah Climate Center. "Not too many records have been broken lately."

Broken? Most probably haven't even been injured. Jensen has spent much of his professional career around the oceans where record-breaking weather acquires nasty, titanic proportions, engulfing islands and swallowing ships, that sort of thing. In Utah, record-breaking climatological events need not gouge canyons, desiccate vegetation or freeze crops, but they should accurately reflect the historical record.

They often don't.
Jensen should know. He is the custodian of hundreds of thousands of weather reports in Utah gathered over the last century, from Big Water in southern Utah to Grouse Creek in the northeast corner, from Allens Ranch to Zion National Park and nearly 900 other locations in between. What appears to be unusual in a year or decade is often normal over the long range, and there’s the rub. Some contemporary record-breaking behavior is based on a puny slice of the history.

For instance, Jensen says the climate in Utah during the last 100 years has been characterized by wide swings, each lasting several decades. Conditions in the late 1940s to the early 1960s were rather stable, with more moderate fluctuations in precipitation and temperature. After that, however, conditions appear to have reverted to those characteristic of the early 1900s. Even the gnarly drought of the last few years falls within the realm of “normal.”

As a result, most record-breaking temperatures and precipitation are based on a truncated record, perhaps one based on only a few decades. It’s somewhat like taking thinner slices of a cherry pie until one of the few cherries that remain is the largest in the slice.

Jensen is bemused by the creative reporting of weather data. Nonetheless, climatology is serious business. There are innumerable ways in which the compilation and analysis of weather data spurs science and lubricates commerce.

On July 27, 1987, hailstones 2 inches in diameter fell in both Salt Lake City and Provo, the largest hailstones recorded in the state. Big, for sure, but no match for the world’s largest, which fell in Spain on June 15, 1829, which weighed in at 4.5 pounds each.
And even though climatology deals with the analyses of past weather conditions, not forecasts, the past is still the best guide to the future.

In Utah, the first weather records were compiled in 1847 by dedicated observers using crude equipment. Since then, weather data have been collected at 900 stations in the state, sometimes only briefly at a specific location. Today, the Utah Climate Center gathers data from 300 stations, 187 manned by observers.

**Hot enough for you?**

Temperatures (°F) measured at cooperative climatological stations serviced by the National Weather Service, September 1891 to January 1993

<table>
<thead>
<tr>
<th>Month</th>
<th>Maximum</th>
<th>Year</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>73</td>
<td>1971</td>
<td>Zion National Park</td>
</tr>
<tr>
<td>February</td>
<td>84</td>
<td>1986</td>
<td>St. George</td>
</tr>
<tr>
<td>March</td>
<td>89</td>
<td>1986</td>
<td>St. George</td>
</tr>
<tr>
<td>April</td>
<td>98</td>
<td>1898</td>
<td>St. George</td>
</tr>
<tr>
<td>May</td>
<td>108</td>
<td>1910</td>
<td>St. George</td>
</tr>
<tr>
<td>June</td>
<td>116</td>
<td>1892</td>
<td>St. George</td>
</tr>
<tr>
<td>July</td>
<td>117</td>
<td>1985</td>
<td>St. George</td>
</tr>
<tr>
<td>August</td>
<td>113</td>
<td>1892</td>
<td>St. George</td>
</tr>
<tr>
<td>September</td>
<td>110</td>
<td>1950</td>
<td>St. George and Zion National Park</td>
</tr>
<tr>
<td>October</td>
<td>99</td>
<td>1980</td>
<td>St. George</td>
</tr>
<tr>
<td>November</td>
<td>86</td>
<td>1924</td>
<td>St. George</td>
</tr>
<tr>
<td>December</td>
<td>76</td>
<td>1906</td>
<td>Rockville (Zion National Park)</td>
</tr>
</tbody>
</table>
The other stations are automated, spindly robot-like sentinels that incessantly gobble information. Every 2 seconds, the automatic stations record precipitation, wind speed and direction, temperature, solar radiation, and relative humidity. These values are averaged and recorded every hour, as are the highest and lowest values for the day. Human observers collect less information. They record maximum and minimum temperatures and precipitation. Some also describe sky conditions and unusual events.

How cold was it?

Minimum temperatures (°F) measured at cooperative climatological stations serviced by the National Weather Service, September 1891 to January 1993.

<table>
<thead>
<tr>
<th>Month</th>
<th>Minimum</th>
<th>Year</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>-50</td>
<td>1913</td>
<td>East Portal</td>
</tr>
<tr>
<td>February</td>
<td>-50</td>
<td>1899</td>
<td>Woodruff</td>
</tr>
<tr>
<td>March</td>
<td>-37</td>
<td>1917</td>
<td>East Portal</td>
</tr>
<tr>
<td>April</td>
<td>-19</td>
<td>1917</td>
<td>East Portal</td>
</tr>
<tr>
<td>May</td>
<td>0</td>
<td>1965</td>
<td>Silver Lake Brighton</td>
</tr>
<tr>
<td>June</td>
<td>10</td>
<td>1919</td>
<td>Blacks Fork</td>
</tr>
<tr>
<td>July</td>
<td>8</td>
<td>1990</td>
<td>Pine View Dam</td>
</tr>
<tr>
<td>August</td>
<td>18</td>
<td>1964</td>
<td>Hardware Ranch</td>
</tr>
<tr>
<td>September</td>
<td>2</td>
<td>1926</td>
<td>Woodruff</td>
</tr>
<tr>
<td>October</td>
<td>-16</td>
<td>1972</td>
<td>Woodruff</td>
</tr>
<tr>
<td>November</td>
<td>-30</td>
<td>1979</td>
<td>Woodruff</td>
</tr>
<tr>
<td>December</td>
<td>-49</td>
<td>1932</td>
<td>Woodruff</td>
</tr>
</tbody>
</table>
Utah averages about 1 tornado per year.

This web captures the climatic pulse for posterity, a record of the mundane as well as the cataclysmic. The system is so accurate that solar collectors on about 50 of the automatic stations detected differences in the intensity of a recent solar eclipse.

In addition to its own 50-station network, the Utah Climate Center compiles and archives data from 17 weather networks operated by other groups and agencies, including those operated by the National Weather Service, the Soil Conservation Service, and the Bureau of Land Management (BLM). The criteria used to locate sites vary, which means that stations are located everywhere from mountain peaks to desert lowlands, from crowded cities to the boondocks where there’s not a soul for miles around. For example, the BLM relies on stations to assess the risk of fire, and locates them on rangeland and forests. The Climate Center’s stations are located on agricultural sites.

The 57,000 pieces of weather data that arrive daily at the Utah Climate Center are checked for errors and are shunted into computers, fodder for all kinds of research, including studies involving crop growth and insect development. The information is used to calculate range readiness indexes and to cope with drought.

How dry was it? It depends. Jensen says there are four drought indices, one based on rainfall, one on the effects on shallow-rooted grasses, one for deep-rooted trees, and one on the flow of water into reservoirs. Determining the start or end of a drought depends on the particular index. For example, last October soil moisture signaled the demise of the recent drought but low reservoir levels indicated its persistence.

The highway department relies on climatic data, as do natural resource managers, tourism officials, and those trying to lure the winter Olympic games to the state. (Two weather stations were installed to compile information on snow and cold temperatures. There were ample amounts of both.)
Farmers rely on the data to calculate evapotranspiration values and schedule sprinkler irrigation, thereby reducing pumping costs, over-irrigation, and the leaching of nutrients. A trial in Ferron (Emery County) to improve the accuracy of irrigation scheduling involves 30 farmers who utilize information from five weather stations. The trial is sponsored by the Bureau of Reclamation, the Soil Conservation Service and the USU Department of Biological and Irrigation Engineering Department.

Jensen is also analyzing climate records to determine how to divide the state into climate zones that are more homogenous than the seven existing divisions. "The areas of similar precipitation differ from areas of similar temperatures. It may be that different divisions will be required for different criteria," he says.

Also on tap is a revision of the plant hardiness map for the state. The current map was based on limited information about average minimum temperatures in the state gathered by the USDA from 1974 to 1976. USU researchers use records from 1890 to 1990 to produce a much more detailed and accurate map to aid plant selection by nurserymen and farmers.

A related study identified areas prone to extremely cold temperatures. The study was prompted by the cold snap of 1991, which killed peach, cherry and nut trees in many areas of the state. (It appears that these areas can expect bitterly cold weather about every 9 years.)

In Utah, the relative humidity on hot clear days is frequently as low as 10 to 15\% during the hottest part of the day. During the evening hours humidity can be as high as 90 - 95\%.
Aberrant weather is interesting, but some of the hottest research areas in climatology today involve attempts to identify “normal” climatic regimes. Normalcy must be defined to determine whether global warming and depletion of the ozone layer are nudging climate in an unusual direction.

Have the greenhouse effect and global warming influenced Utah’s climate during the past century? What will happen to the distribution and amount of precipitation (and the corresponding ecological effects) if temperatures do increase? Jensen’s preliminary findings indicate that there’s been no increase in temperature or change in precipitation in any area of the state. So far, it appears as if the effects of

This is a desert?

Record precipitation in Utah for various time periods.

<table>
<thead>
<tr>
<th>Period</th>
<th>Inches</th>
<th>Month</th>
<th>Year</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 minutes</td>
<td>1.03</td>
<td>August</td>
<td>1975</td>
<td>Bryce Canyon</td>
</tr>
<tr>
<td>10 minutes</td>
<td>1.03</td>
<td>August</td>
<td>1975</td>
<td>Bryce Canyon</td>
</tr>
<tr>
<td>15 minutes</td>
<td>1.53</td>
<td>August</td>
<td>1983</td>
<td>West Valley</td>
</tr>
<tr>
<td>30 minutes</td>
<td>2.10</td>
<td>August</td>
<td>1941</td>
<td>Ogden Canyon</td>
</tr>
<tr>
<td>1 hour</td>
<td>5.00</td>
<td>August</td>
<td>1958</td>
<td>Morgan</td>
</tr>
<tr>
<td>24 hours</td>
<td>8.40</td>
<td>September</td>
<td>1991</td>
<td>North Ogden</td>
</tr>
<tr>
<td>Month</td>
<td>25.45</td>
<td>December</td>
<td>1984</td>
<td>Alta</td>
</tr>
<tr>
<td>Water Year</td>
<td>98.37</td>
<td></td>
<td>1983-84</td>
<td>Alta</td>
</tr>
</tbody>
</table>
If you’re looking for snow, check the topography. The snow is usually much deeper at higher elevations. Annual amounts vary from less than 10 inches in western and southeastern Utah to more than 700 inches at high elevations in the Wasatch Front. Skiers may remember January 1965 when 105 inches fell at Alta, the record snowfall for the state.

a forecast 4°C increase in temperature over the next 150 years would hardly be noticeable. A 10°C shift would probably alter the precipitation regime.

The statistical portrait of the state’s climate continues to improve. Climatic changes tend to be imperceptible, so better information improves the odds of detecting the subtle shifts that portend major changes. No Ice Age looms during the next few decades, but uncertainty over the effects of a depleted ozone layer, burgeoning CO₂ levels, and other by-products of industrialization has appreciably increased the intellectual turbulence in climatology.

Computers have improved our ability to digest this information and to put it to good use. Our appetite for this information has also escalated, partially out of simple curiosity but mostly for immensely practical and useful reasons—growing crops, estimating evaporation from sewage lagoons, constructing highways, or planning an outdoor wedding (In the past, at least, precipitation is least likely during the last two weeks in June.)

Climate is an enormously complicated phenomenon, whose manifestations are nearly as diverse as a living organism. Even 60,000 pieces of weather data per day don’t fully capture the sweep and diversity of Utah’s climate.

KG
Donald Jensen 750-2191
Program Provides Information About Benefits of Pesticide Use

Safe and proper use.

It’s a phrase Howard Deer has probably repeated thousands of times during his career as a toxicologist and pesticide specialist. He’ll probably keep saying it because both concepts are valid.

Pesticide use has fostered controversy for at least 20 years. Consumers like relatively cheap, attractive, flavorful food, but many object to the use of pesticides.

Deer says farmers aren’t eager to apply them either, but can’t forgo the substantial benefits that pesticides offer—used safely and properly, of course.

“I have never met a farmer yet who was excited about spraying his crops with pesticides,” Deer says. “It is expensive and adds a step to the production process, but they appreciate the yield that pesticides give them. Most farmers would love to stop using pesticides, but they are not going to go back to hoeing and weeding by hand or suffering extensive insect losses.”

Deer says some critics expect farmers to stop using a particular pesticide before there is any proof that it’s harmful.

Please turn to page 53
Less Water, Better Varieties May Spur Asparagus Production

Will vegetable production dry up along the Wasatch Front?

Probably not, but competition for water may dictate changes in how and which vegetables are grown. Among the likely changes—more efficient irrigation practices and crops that thrive on less water.

This may be an opportune time for the commercial production of asparagus, a drought-hardy vegetable that commands premium prices, says USU horticulturist Dan Drost.

Commercial asparagus production thrived in the state during the 1930s and 1940s. Most grocery stores in Utah now get their asparagus from Arizona and California, which arrives 4 or 5 days after picking, and suffering a bit from the journey. “Many consumers are sorely disappointed with the quality of imported asparagus,” Drost says, which should augur well for fresh Utah-grown asparagus.

Asparagus tolerates drought, although there’s relatively little information on how water affects yields, particularly over the long haul. Drost is studying the growth and development of asparagus under irrigation regimes ranging from well-watered to no irrigation to determine how irrigation affects shoots, roots, and buds, with particular attention to the roots. (Eighty percent of the biomass of asparagus is root mass.) Because spears are derived from buds that form the season before harvest, the effects of irrigation on yields may not be apparent until the next growing season.

Drost is also evaluating 14 asparagus varieties. The 6-year study involves 2,500 plants, which will be excavated periodically during the study. Some may be a replacement for the venerable “Mary Washington,” a variety released almost 75 years ago that is still readily available and popular among homeowners even though its yields are pedestrian.

The tests include eight lines from New Jersey that produce only male offspring. Male asparagus plants generally produce more but smaller spears than females. The total weight of spears from these male-only lines has been about 30 percent higher than from mixed progeny of males and females. One of the best male varieties is Jersey Giant.

Five varieties from California include four commercial varieties and a “novelty” variety with purple spears.

KG  
Dan Drost 750-2258
Bacteria May Control Wheat Disease

The world is teeming with bacteria, some harmful, some benign. And some, it appears, can even help wheat fend off a fungus that causes root rot in dryland wheat.

USU plant pathologist Bradley Kropp screened hundreds of strains of soil bacteria collected from Cache Valley in northern Utah, several of which were antagonistic against, *Fusarium culmorum*, one of the several species of fungi that cause dryland root rot in wheat. Most of the effective strains were phenazine-producing pseudomonads, which researchers elsewhere are studying as biocontrol agents against other plant pathogens.

Field studies this summer will determine how these strains fare outside of the laboratory. Kropp is also determining whether some wheat cultivars are more hospitable hosts for the bacteria.

*F. culmorum* often contaminates seeds and occurs naturally in soil. Although chemical treatments ward off the fungi on seed, most don’t confer any protection later in the season. Moreover, there are no completely effective chemicals, nor would it be economically feasible to treat fields later in the growing season.

Inoculating seed with bacteria antagonistic to the fungi might confer long-lasting protection if these bacteria colonize the roots and stems of wheat plants.

Losses due to dryland root rot vary and tend to be higher when plants are stressed by drought and high temperatures. In older plants, the fungi damage roots but usually don’t cause any noticeable symptoms in the foliage. As a result, growers may not notice infected plants even though thinned stands, reduced tillering and shrunken kernels caused by the fungi often reduce yields between 3 and 5 percent.

KG
Bradley Kropp 750-3738

Rocks May Help Farmers Make Better Use of Manure

There’s no shortage of rock in the western landscape and there’s no shortage of manure on most livestock operations.
USU researchers think the two belong together. The combination could be the ultimate example in wresting economic benefits from two lowly products.

The rock is porous zeolite that formed from the material spewed by volcanoes. By combining manure with zeolite, researchers hope to make a slow release fertilizer that results in more productive use of manure, curbs pollution, and may even create indigenous industries.

In theory, livestock manure should be a valuable by-product—it’s abundant, low cost and packed with nutrients.

In practice, it’s often a problem because it’s too abundant, bulky and difficult to store, and often applied in a manner that lets nutrients, especially nitrate, enter ground and surface water.

That’s where zeolite might help. When mixed with manure, tiny pores in the rock trap the ammonium in wastes, shielding it from nitrifying bacteria, thereby slowing the release and conversion to nitrate to a rate that more closely mirrors plant demand. Nitrate is a major contributor to manure-related pollution of surface and ground water.

Zeolite is used to trap ammonium in human sewage, but little is known about how rapidly the trapped ammonium might be released in the soil, says USU soil scientist Lynn Dudley.

Ground zeolite would be compatible with existing farm operations, Dudley says. It can be added to bedding or storage lagoons and wouldn’t require any changes to manure-handling practices. Moreover, is a good soil amendment by itself—it’s light and retains water. As the ammonium is released, the zeolite remains, improving soil tilth and water-holding characteristics. The zeolite-manure combination could be just the ticket for agricultural soils in the West, many of which have low natural fertility and are highly permeable.

It may be possible to process ammonium-saturated zeolite to stabilize the product and to eliminate any objectionable odors, perhaps even resulting in a slow-release fertilizer for homeowners and gardeners.

But that’s in the future. The first phase of the study by Dudley, soil scientists Janis Boettinger and Jeanette Norton, and geologist Peter Kolesar involves laboratory studies of the characteristics of zeolites and of the mechanisms and rates of nitrate release from zeolite-manure mixtures. If these results are promising, they’ll seek funding for a pilot project.

Their research is funded by the Cooperative State Research Service (USDA) under the President’s Initiative for Water Quality and the Utah Agricultural Experiment Station.

Utah Botanical Garden Gets Bigger—And Better

It’s quite a show—more than 70,000 showy annuals and thousands of perennials, woody shrubs and trees.

You can catch the display at the Utah Botanical Garden in Kaysville, which is a proving ground for these plants as well as for displaying plants in natural settings. And the display will become even larger and more attractive when the Botanical Garden moves to a new location, a 60-acre site in Kaysville north of the present location.
In addition to testing new species, varieties and cultivars, the Botanical Garden has important roles in research, teaching and Extension activities that characterize a land-grant institution, says Director Bill Varga. The move to the new location, which should be completed in several years, will markedly increase the scale and range of activities offered by the Botanical Garden.

Varga says the ponds, contours and other natural features at the new location offer more landscaping possibilities.

Determining how plants fare in Utah’s climate helps nurseries and gardeners around the state make the right selections. For example, some shrubs with a hardness of Zone 7 (temperatures no lower than 10-15°F) have been found to fare well in colder temperatures. Researchers are now seeing how a columnar type of Goldenrain tree fares in Utah. The Goldenrain is a medium sized tree able to tolerate a wide range of soil conditions.

A cooperative study with researchers at Northern Arizona University confirmed the aphid resistance of a cottonwood from Utah. USU researchers utilize the Botanical Garden in a variety of other research projects.

The Botanical Garden also offers a weekly diagnostic lab. Varga is also helping several communities start similar satellite gardens. More than 20 acres of the Ogden River Parkway are devoted to gardens. Moab has expressed interest in such a garden, and a heritage garden utilizing varieties planted by the pioneer settlers is being developed in St. George.

The Botanical Garden identifies which plants fare well under Utah conditions. The result is a more attractive landscape—and happier home gardeners and home owners.

Recent Grants & Contracts

PacifiCorp (Utah Power & Light Corporation) funds the research of Lynn Dudley and Esmaeil Malek, Plants, Soils & Biometeorology Department, involving the use of saline waste water from electrical power plants for irrigation.

John Carman, Plants, Soils & Biometeorology Department, has received a grant from the Rockefeller Foundation to characterize a new apomictic rice line.

The Utah Department of Agriculture funds research by Schuyler Seeley, Plants, Soils & Biometeorology Department, involving the relationship between foliage area, length of the growing season and fruit production.

Edward Evans, Biology Department, studies the pollination biology of endangered species. His research is supported by the Agricultural Research Service (USDA).

Kay Asay, USDA Forage and Range Research Laboratory, is developing a salt-tolerant forage grass with support from the Utah Department of Agriculture.

Sherman Thomson, Biology Department, is studying the biological control of Dyer’s woad with Puccinia sp. of rust. His research is funded by the Utah Department of Agriculture.

Donald Jensen, Plants, Soils & Biometeorology Department (Utah Climate Center) is studying probable maximum precipitation in Utah for dam safety studies. The study is funded by the Utah Department of Natural Resources/Division of Water Rights.

Dee Von Bailey, Economics Department is developing a coordinated marketing plant for Utah’s trout industry with support from the Utah Department of Agriculture.

The San Diego State University Foundation provides funding to Jennifer MacAdam and William Campbell, Plants, Soils & Biometeorology Department, to train international students enrolled in graduate programs at USU.
The National Agricultural Pesticide Impact Assessment Program attempts to balance these conflicting views. As the state liaison for the program, Deer gathers information about the benefits and hazards of pesticides under “special review” by the Environmental Protection Agency (EPA).

The assessment program also funds pesticide-related research.

“The EPA’s job is to look at the risks associated with pesticides,” Deer explains. “USDA provides information to help put balance in regulatory decisions. Often, the special review pesticides are not canceled, but EPA modifies the way a pesticide is used.”

There may be several outcomes to the EPA review, including withdrawal of approval, changes in application rates or methods, restrictions in use, changes in formulations, or changes in labels. The Utah program has already examined pesticides used in grain and forage production. A survey underway now involves pesticides used on fruit. On tap is a survey of pesticides used in vegetable production.

Deer says the regulatory and public pressure to eliminate use of a pesticide use must by tempered by patience and good judgment. Biological control and integrated pest management are exciting alternatives, but won’t immediately replace chemical controls.

So Deer keeps gathering information while he promotes the “safe and proper use” of pesticides.

Safe, proper...and legal

A pesticide label is a legal document. It's a violation of federal and state law to use a pesticide in a way that is inconsistent with the label. Violators can be fined.

There are plenty of pesticide labels. As of 1989, there were approximately 21,000 products formulated from 800 active ingredients that were registered with the EPA as pesticides.

Howard Deer 750-1602
Gender and Housework:

Traditional Roles Persist
She does the grocery shopping. He does the laundry. She cleans the bathrooms. He takes out the trash. They take turns cooking dinner and reading to the children.

It's division of household labor and it's become a lot more complicated—and contentious—as familiar tasks and old assumptions are strained by the exigencies of modern life.

There are a lot of imponderables involved in determining how the household chores are divvied up—power, income, and gender roles, for example, say USU sociologists who are studying the topic.

There are a lot of interesting and logical reasons why men might be doing half of the housework, but the simple fact is that most aren't. Even on the cusp of the 21st century, most of these tasks are relegated to women.
Some glimmers of change are apparent, however. Men today say they provide a lot of assistance, something that men a generation or two ago might not have even bothered to admit or even consider. Women say men generously overestimate how much assistance they provide.

Are men chasing dust bunnies and washing dishes when women aren't watching?

Probably not, say the sociologists. The discrepancies in perceived contributions probably mean that men don't know how much housework is actually necessary. And they don't know because they don't do enough of it or women do it when men aren't around.

When USU sociologists Gary Kiger and Pamela Riley began trying to unravel how families divide household labor, part of a regional project examining work, stress and families, there were a couple of theories that promised to explain why men might shoulder a larger proportion of the household chores. One theory assumed that men would do more if their mates contributed a higher proportion of the resources such as income to the household. Another held that men who
professed a strong belief in gender equity would be more likely to wield the mop or diaper the baby.

Not so. “As it turns out, these issues aren’t important, or at least not in the ways that we thought they would be,” Kiger says. For example, men who say they believe in gender equity tend to be better educated and earn higher incomes, which lets them hire household help instead of doing it themselves. The same factors may also explain why housework isn’t parcelled out more equitably even when women earn more than their husbands.

The results also indicate that habits are hard to break. “How long couples have lived together wasn’t associated with more equitable distribution of housework. If men don’t help with housework in the start of a relationship, women can’t expect them to help later,” Kiger says.

These findings are consistent with other studies showing that women who work outside the home still do the majority of the household chores. Most finish work and start a “second shift” as cook, cleaning woman, childcare provider, chauffeur, gardener, tutor, accountant, recreation planner, personal shopper, etc. Utah husbands shared this proclivity to avoid housework with their counterparts in other states.

Kiger says the housework borne by women is a legacy of defining household duties as “women’s work.” Some housework may be “invisible” to men, especially in “traditional” marriages where the husband works outside the home and the wife doesn’t. Men in traditional marriages tended to pad their estimated contribution to housework more than did men in marriages where women work outside the home. Respondents weren’t asked how much they helped with specific tasks, so we don’t know if, for example, men harbor a greater aversion to scrubbing pots than to scouring floors.
The startling differences in how men perceived their contribution to housework often made it seem as if mates lived in different worlds. One was inhabited by considerate husbands doing their fair shares. (His view). The other was inhabited by overworked and overwrought wives. (Her view). “It’s almost as if there was a ‘her’ relationship and a ‘his’ relationship,” Kiger says.

Men may avoid housework because they are adroit at fabricating reasons not to.

“There isn’t much cultural support for men doing more household labor, or for women to resist doing so much. Dividing household labor has a lot to do with who has power and resources. Usually it is men who have been in the workplace developing negotiating skills and management skills. Intimidation, useful in negotiating contracts, may also help men bargain their way out of housework,” Kiger says.

These inequities may help explain why women, especially married women, consistently report higher levels of stress than do men. Being responsible for more household tasks obviously contributes to stress.

And even if men do help, women usually shoulder the responsibility for organizing and planning housework. “There’s a lot more to consider than just who’s doing the dishes and vacuuming,” Kiger says.

Kiger, Riley and graduate assistant Holly Tingey are determining who handles the “emotional labor” around the
households: Who is the peacemaker? Who tends to help others? Who brings up pressing problems? These tasks strengthen relationships, although the person responsible for them doesn’t receive much credit for them.

Also of interest is the “spillover” effect of work into the home and vice versa, a consequence of wage-earning women trying to balance careers and household tasks. Kiger says work-related stress that affects the husband may cause more stress for a woman than if her job was affected directly. In large part, that’s because women usually have to “take up the slack” at home for their spouses, as well as nurture their husbands.

It’s another reason why working women often say they don’t get enough sleep or leisure time, and feel that they have lost control of their lives. Eventually, the responsibilities take their toll. “In and of itself, housework might not drive women around the bend, but it might when it’s added on to their other responsibilities,” Kiger says.

Kiger says women’s larger share of household tasks seems to be a legacy of traditional gender roles that relegated most women to low-status tasks and limited women’s income and access to other resources.

If hubby doesn’t dust and cook, and his wife didn’t notice, then the matter would be of little interest to inquisitive sociologists. But the results clearly indicate that women know when men don’t do their fair share of the housework.

And women notice. They are starting to care. It should lead to some mighty interesting sociological phenomena on the home front.

LH

When counting only the responses from traditional couples (husband works away from home, wife is a homemaker) men gave themselves even more credit for sharing the housework equally than did men whose wives work outside the home. Thirty-one percent of them said they carry half the workload at home. But only 3 percent of their wives agreed.

Gary Kiger 750-1235
Pamela Riley 750-1256
Families
Still Share Some Meals

We haven't completely abandoned family meals, according to a recent study of family meal behavior. In Utah, and in other states as well, most families still share at least one meal daily.

That's encouraging because sharing meals seems to facilitate communication. Family meals are often used as a barometer of a family's emotional health and cohesiveness, says Carmen Steggell, assistant professor in the USU Home Economics & Consumer Education Department.

Previous studies had detected a disconcerting trend away from shared meals. In the 1960s, families shared two meals daily. By the 1970s, they shared only one, and some observers predicted a further decline in shared meals due to an increase in dual-income families and the frenetic pace of modern life.

Nonetheless, a recent study suggests families in Utah still shared about one meal daily, whether or not homemakers were employed, and whether families were in urban or rural areas.

"As far as shared meals, things are not changing as rapidly within families as many predicted, although it's not known whether this reflects economic factors or a deliberate attempt by families to preserve certain values," Steggell says.

Other findings indicated that families devoted less time to meal preparation and tended to dine out about once a week.

Utah families don't appear to be unique in their meal-sharing behavior. Results
were similar in the other 10 states that participated in an earlier (1977) regional study, although studying only two-parent, two-child families may have eliminated some of the differences that appear in larger families.

Steggell analyzed data from a 1987 study of time use in 214 Utah two-parent, two-child families conducted by USU home economists Jane McCullough and Marilyn Noyes, and Cathy Zick at the University of Utah.
Changing Views of Public Lands: How Should USU Respond?

Few issues are more important—and more controversial—than the fate of public lands. The use of public lands will have an enormous effect on economic and social development in Utah, where more than three-quarters of the land in the state is managed by agencies of the state and federal government.

For more than a century, Utah State University, the state’s land-grant institution, has had an important role in the use and management of these lands. Some now question whether land-grant universities are responding appropriately to new issues and concerns.

Please join us September 27 for an important discussion of USU’s role in the use and management of public lands. On September 28, participate in informative sessions concerning several important natural resource and agricultural issues.

The entire conference costs $25, with reduced rates if you choose to participate in selected sessions. For a brochure, please contact county USU Extension offices or call 801 750-2282. Registration deadline is September 20.
September 27
The Role of the Land Grant University in the Management of Public Lands
Eccles Conference Center
Utah State University

Registration/Continental Breakfast
9:30-10:15 a.m.

Welcome
10:30 a.m.
George Emert, USU President

USU’s Contributions: Is the Past Prologue to the Future?
10:40 a.m.
Roger Banner, USU Extension Range Specialist

The Economic Importance of Public Lands in Utah: What We Know...And What We Don’t
11:10 a.m.
Bruce Godfrey, USU Extension economist
Richard Krannich, USU sociologist
Robert Lilieholm, USU economist

Luncheon
“Public Policy, Credibility & the Land Grant University”
An address by Emery Castle, economist, Oregon State University and former president, Resources for the Future Inc.

The Future Role of Land Grant Universities in the Use and Management of Public Lands
A Panel Discussion
1:30 p.m.
Moderator: Allen Rasmussen, USU Extension Range Management Specialist
Ed Marston, publisher, High Country News
Hardy Redd, rancher, La Sal, Utah
Thad Box, former dean, USU College of Natural Resources, currently Gerald Thomas Endowed Chair of Food Production and Natural Resources, New Mexico State University
Emery Castle, economist, Oregon State University
Jim Baca, director, U.S. Bureau of Land Management (invited)
Ted Stewart, executive director, Utah Department of Natural Resources

Summary and Discussion
3:00 p.m.

Presentation of the Land Grant Hall of Fame Award
Monitoring and Evaluating Rangeland Resources
8:00 a.m.-10:00 a.m.

Ranchers holding federal grazing permits and representatives of public agencies often differ in how they view the condition of rangelands and of livestock carrying capacity. It's also difficult to distinguish between the effects of livestock, wildlife, recreation and other uses.

This in-depth session focuses on several methods used to assess trends or changes in rangeland condition. Rangeland condition and trend have been proposed as the basis for incentive-based grazing fees on public lands. Topics include techniques to monitor vegetation and wildlife populations on rangelands and new technologies for monitoring rangelands.

A Dialogue with Agriculture
10:00 a.m.-Noon

In four concurrent sessions, researchers and extension specialists with the College of Agriculture will describe current research involving important topics, including alternative sources of forage for livestock, an update on the study assessing the economic impact of wilderness, no-till seeding of rangeland and low-level near-infrared sensing of rangeland, and new meat products for the 21st century.

At 11:30, participants will have an opportunity to discuss their concerns with Rodney Brown, dean of the USU College of Agriculture, H. Paul Rasmussen, director of the Utah Agricultural Experiment Station, and Robert Gilliland, vice president for University Extension.

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