Natural Resources and Environmental Issues

Volume 7 *University Education in Natural Resources* Article 15

1-1-1998

Training foresters for wood procurement

Glenn R. Glover
School of Forestry, Auburn University, Alabama

TRAINING FORESTERS FOR WOOD PROCUREMENT

Glenn R. Glover
Associate Professor of Forest Biometrics,
School of Forestry, Auburn University, Alabama 36849

ABSTRACT: In the Southeastern United States the proportion of commercial forest land owned by non-industrial forest landowners is very high (75% in Alabama). Procurement of raw wood material from these private lands is a major activity of wood dealers and industrial forestry firms and is a major source of jobs for new forestry graduates. Few forestry curricula train students in the intricacies of procurement, however. This paper describes a course taught by the School of Forestry at Auburn University, ***Industrial Wood Procurement Practicum***, that introduces forestry students to the many facets involved in procuring raw material for an industrial firm.

Each spring, procurement foresters from industry are invited to participate in the *Practicum* as procurement managers of hypothetical forest products companies. Each hypothetical company is assigned a set of mills and product output. This in turn determines raw materials the company will be vying for on the open market. Each company's mills are situated across southern Alabama and located on a map. Fifteen forest stands are identified on the 5500-acre Solon Dixon Forestry Education Center, where the *Practicum* is held. A variety of stand types are chosen to provide a range of products and product mixes available for "purchase." Each stand is also located on a map of southern Alabama, scattered among the companies' mills. Road miles from each stand to each mill is given for computing hauling costs and evaluating potential competitors' interests. A prospectus is given for each stand, listing the general products and most recent diameter distribution available.

Students are assigned to the companies and become procurement foresters working for one of the procurement managers. The students, with their manager, determine which stands might provide suitable raw material for their mills at a competitive price. Prices can be negotiated among companies for transfer of products. Appropriate stands are inventoried and values are estimated taking logging, hauling, overhead, severance tax and other costs into account. Sealed bids are prepared and opened for each stand. One stand is sold as a negotiated tract by a fictitious landowner, who is typically given an unusual set of circumstances with which the students must cope.

Students and the industrial procurement foresters respond well to this scenario. Both feel it is a very worthwhile and "realistic" exercise. Important "lessons" will be discussed.

INTRODUCTION

As substantial percentage of all new jobs in the southeastern U.S. are in the area of wood procurement. Traditional forestry curricula in the South concentrate on aspects of managing the myriad of resources produced within and by the forest, but allocate little or no time on the area of procuring wood for industrial firms from private landowners. In Alabama, over 75% of the forestland is owned by non-industrial, private landowners. These forestland owners include farmers; individuals who inherited the land; professionals such as doctors, lawyers and teachers who purchased the land for recreational, investment or other reasons; land trusts managed by consultants or banks for income; insurance companies that purchased large parcels for investment; and others who own the land for a variety of reasons. The wood products produced on these lands are not pledged to a specific mill and are therefore available to be sold on the open market.

Wood procurement has often been equated with timber cruising. To buy wood, one simply cruises a tract of timber, places a dollar value on the products, makes on offer to the landowner, and begins cutting. Wood procurement today, however, requires a complex set of skills including competence in timber inventory techniques (increasingly utilizing GPS, GIS and data recorder technology), personal and industrial negotiation, legal and environmental regulations, financial and business management, people management, and strong interpersonal and written communication skills. A successful wood procurement forester is much more than a "timber cruiser." He or she must constantly deal with people from all walks of life; be able to manage independent road, logging and hauling contractors; operate within the constraints of corporate guidelines and governmental regulations; and handle large sums of money. The total value of wood delivered to mills in Alabama exceeds $13.2 billion per year. Procurement foresters commonly purchase tracts of timber valued greater than $500,000. Above all else, a procurement forester must deal

fairly with all sellers and clients and must maintain the highest level of integrity.

The School of Forestry at Auburn University has for more than fifteen years offered courses in Wood Procurement in order to prepare graduates for this important career. This paper describes an Industrial Wood Procurement Practicum that is designed to give students a near "real-world" experience in wood procurement. It involves a major commitment of time and effort by the forest industry in the state. It provides the students not only experience and a better understanding of the art and science of wood procurement, but also gives potential employers an "on-the-ground" interview of potential employees.

PURCHASING WOOD IN THE SOUTH

Most southern states are similar to Alabama, in that a large proportion of the forestland is owned by non-industrial private landowners. Many of these landowners have an interest in selling timber from their land. Some sell based on economic maturity, others during times of high stumpage values, and still others when income is needed for a family emergency, college tuition, or a new vehicle or other consumer item. The decrease in harvest levels on public lands, particularly in the western U.S., has resulted in substantial increases in stumpage values in the South. Many landowners that in the past had little or no interest in selling timber are actively seeking buyers.

Standing timber is often bought by a procurement forester or timber buyer negotiating one-on-one with the landowner for a fixed, lump-sum payment, or for specified prices per unit of wood (per ton or per cord, etc.). Many landowners, however, believe they can maximize their timber income by advertising the sale of their timber, with a specified date, time and place of the acceptance of sealed lump-sum bids. Ten years ago it would have been unusual for more than six or eight potential buyers to place bids for a tract of timber. It is not uncommon today to have more than twenty bidders for attractive tracts of timber.

Many corporations and mills employ procurement foresters whose job is to purchase wood suitable for their mills, contract with independent loggers and haulers to harvest and transport the products to the mills, and to sell products they do not need to other mills. Many organizations also encourage or require foresters to work with the landowner in regenerating the land and may even offer technical and financial assistance for regeneration efforts. In some organizations, foresters have responsibility for both procuring wood for company mills and for managing company-owned land. These foresters require a wide breadth of knowledge and skills.

A large portion of wood supplied to mills is provided through what is called the "dealer" system. Wood dealers are independent businesses that purchase timber on the open market, often bidding against the large corporations. They are not tied by contract to one mill, but may have "wood quotas" from several mills. The dealers, in turn, pay independent loggers and haulers to cut and haul wood they purchase to their wood yard. Some also purchase "gate wood" or wood purchased by a logger. This system provides independence among the timber suppliers and the mills. The dealer does not work for the mill, and the loggers do not work for the dealer. Each is an independent entity. This provides some "insulation" for the mills in terms of liability, but also helps insure the proper working of the free market system, since a single mill in an area cannot control the market price of wood. The laws of supply and demand are exemplified in such a situation.

THE INDUSTRIAL WOOD PROCUREMENT PRACTICUM

The following instructions are given to each student and industrial procurement forester:

Eight companies have been established, each with differing mills and wood requirements. Procurement foresters from industry will serve as procurement managers of each "company." Each student is "employed" by one of these companies. Each student's responsibility is to work with their procurement manager in evaluating available tracts of timber to determine which tracts could provide suitable raw material for your organization. You will determine an appropriate bid price on desirable tracts given specified mill requirements, market conditions and profit considerations. Employees (students) will work in the manner decided upon after consultation and discussion with their manager. *The manager, in addition to what is given in this handout, may give instructions and constraints*. **Instructions and specifications may be changed by agreement of all companies.**

You may cruise the tracts in any manner you wish, with approval of your procurement manager. Local weight tables **requiring dbh only** are provided for all pine and hardwood products. Utility poles will be cruised as "sawtimber", that is if a tree is determined to make a utility pole, its dbh will be estimated and weight determined. A premium price will be given for "pole sawtimber." You do not need to place poles in classes. After determining weights for each product, associated costs can be determined by multiplying each product weight by given cost factors. ***Product weights, harvesting costs, hauling costs, overhead costs, severance taxes, mill or woodyard delivered gate price and market price will be used to determine stumpage price for each product and a bid price for each tract (see example below).*** All companies must complete a 100% inventory, by product, of tract #14 (one acre). For this tract use the inventory processor to estimate weights

only, no dollar values. Product weights will be compared to assess variability of product calls among companies.

Bids are due on:
four tracts — 7:30 a.m. – opened at 8:00 a.m., Saturday morning (using your delivered prices only)
five tracts — 7:00 p.m. – opened at 7:30 p.m., Saturday evening (using delivered and negotiated prices)
remaining tracts — 9:00 p.m. – opened at 9:30 p.m., Saturday evening (using delivered and negotiated prices)

Each organization is limited to 9 bid tracts, plus the one negotiated tract. Each organization must enter an offer for the negotiated tract. DISKETTES MUST BE TURNED IN WITH EACH BID!!!

Bids on each designated tract will be opened and the timber "sold" to the highest bidder. Each bid opening will be discussed to identify possible reasons for successful and/or unsuccessful bids. **Profits generated from each bid will also be evaluated.** ***You should not necessarily buy as many tracts as possible, but also consider the profit your company can generate. A summary of profit will be computed for each tract and for total profit of all tracts you purchase by successful bid.***

Collusion or discussion of weights, volumes or prices for timber among competitors, other than for negotiated product prices, is considered a violation of federal antitrust laws and can result in termination from employment, fines and imprisonment.

Eight companies are located in the same wood drain and compete for tracts of timber (1997 participants):

MAP – **M**cDonald **A**llied **P**roducts, Jon McDonald (Union Camp), Procurement Manager, "We show the way." Pine sawmill and chip-'n-saw mill, pole mill and pine plywood mill. Uses small and large pine sawtimber and pine poles.

GROWTH – **G**lasgow **R**esources, **O**il & **W**ood **T**raders and **H**andlers, Richard Glasgow (U.S. Alliance), Procurement Manager. "We grease the wheels to greater profits." Pulp and fine papers mill (40% pine, 60% hardwood furnish), pine plywood mill, pine chip-'n-saw mill and a pine pole treating plant. Uses pine and hardwood pulpwood, large pine veneer logs, chip-'n-saw logs and pole-sized pine trees.

CNS — **C**oats **N**ationwide **S**awmills. Pete Coats (MacMillan-Bloedel), Procurement Manager, "We don't waste a chip." Pine sawmill, pine chip-'n-saw mill, pulp/paper mill (50% pine, 50% hardwood furnish) and hardwood sawmill. Utilizes small and large sawtimber, pine chip-'n-saw logs, pine and hardwood pulpwood and hardwood logs.

BEST – **B**rigance **E**nterprises & **S**awtimber **T**raders, A.J. Brigance (Canal Wood), Procurement Manager, "We are the simply the BEST." Pulp and kraft paper mill (70% pine, 30% hardwood furnish), pine and hardwood sawmills, and pine chip-'n-saw mill (CNS); also buys and sells timberland and other realty. Utilizes pine and grade hardwood sawlogs, hardwood crosstie logs, pine chip-'n-saw logs and pine and hardwood pulpwood.

BOOTH – **B**ooth **O**ccidental—**O**ptimizing **T**imber **H**arvesters, Bill Booth (Georgia Pacific), Procurement Manager, "You can trust our name.", Pulp and paper mill (60% pine, 40% hardwood furnish), pine sawmill, pine plywood mill and pine pole treating plant. Utilizes large pine sawlogs and veneer logs, pole-sized trees, and pine and hardwood pulpwood.

LIMB — **L**assiter **I**ntegrated **M**anufactured **B**oard, Tom Lassiter (Mead Coated Board), Procurement Manager, "We reach out for business." The parent company is an environ-

Table 1. Summary and location of company-owned mills and woodyards.

Company	Pine Sawmill	Hardwood Sawmill/ Veneer	Pine Plywood/ Veneer	Pine Chip-'N-Saw	Pulp/paper Mill	Pole Mill
MAP	Eoda	X	Babbie	Wing	X	Babbie
GROWTH	X	X	Wing	Gantt	Danley	Wing
CNS	Pigeon Creek	Brooklyn	X	Pigeon Creek	Dixie	X
BEST	Gantt	Babbie	X	Gantt	McKenzie	X
BOOTH	Wing	X	Wing	X	River Falls	River Falls
LIMB	McKenzie	McKenzie	X	Creek	Brooklyn	X
JAM	Dozier	Goshen	Dixie	Dozier	X	X
WOOD	Brantley	Brooklyn	Brooklyn	X	X	Brantley

mental consulting firm, but they have acquired pine and hardwood sawmills, pine chip-'n-saw mill and a pulp/paper mill (30% pine, 70% hardwood furnish). Utilizes large pine sawlogs, grade and crosstie hardwood logs, pine chip-'n-saw logs and pine and hardwood pulpwood. They also develop environmental impact statements and other environmental and perform natural resource consulting.

JAM – **J**aye **A**llied **M**aterials, Allen Jaye (Alabama River Woodlands), Procurement Manager, "We dunk the competition." Pine and hardwood sawmills, a pine chip-'n-saw mill and a pine plywood mill. Utilizes pine sawtimber/veneer logs, chip-'n-saw logs, grade hardwood logs and hardwood crosstie logs.

WOOD – **W**right **O**ccidental **O**perators and **D**evelopers, David Wright (Kimberly Clark), Procurement Manager, "The WOOD business is our name and our game." Pine (rotary) and hardwood (sliced) veneer plants, pine sawmill and pine pole mill. Uses pine sawtimber/veneer logs, veneer-grade hardwood logs, and pine poles. Veneer is sold to plywood plants and to furniture manufacturers.

Weight to volume conversion factors:
15000 lbs (7.5 tons) per mbf Scribner (pine saw and poles)
5350 lbs (2.675 tons) per cord (pine pulp and CNS)
17500 lbs (8.75 tons) per mbf Doyle (hardwood saw & ties)
5800 lbs (2.9 tons) per cord (hardwood pulp)

Average market stumpage prices for the area (assume Area 2) are given in Timber Mart-South attached to this handout. Note, for comparison, weights will need to be converted to volumes using given conversion factors.

For the last two bid openings, raw material that cannot be utilized by your company or that might be sold to another company at a delivered price advantage may be sold at a negotiated price***. Use your delivered product prices only for the first bid opening***. Delivered prices at gate for each product are for your company's mills only, other company's delivered prices at their mills may be different.

Table 2. Road miles from each tract to each mill location.

Tract number and name		Mill or Yard Location: Dozier	Goshen Brooklyn	McKenzie		Gantt	Babbie	Wing	Pigeon Creek	River Falls	Eoda Dixie		Danley Brantley	
		miles												
1	Ino	34	51	65	67	40	22	57	58	42	60	27	31	13
2	Heath	17	47	33	33	6	14	42	29	7	32	10	27	29
3	Rome	46	83	14	46	34	34	13	57	24	4	41	63	49
4	Dixonville	83	118	38	68	70	74	40	87	59	30	81	88	89
5	Jack	38	20	81	68	49	44	84	49	55	82	37	34	19
6	London	73	105	30	46	59	74	54	67	55	38	80	85	89
7	Clintonville	30	32	71	64	45	28	62	54	42	66	30	28	13
8	Herbert	43	73	18	17	30	48	47	38	27	26	51	53	63
9	Black Rock	31	29	64	37	39	54	81	13	46	72	47	21	29
10	Red Level	19	50	20	20	8	30	37	16	9	28	35	30	52
11	Slapout	20	20	20	20	20	20	20	20	20	20	20	20	20
12	Owassa	53	80	30	20	43	62	60	43	39	38	58	60	77
13	Carolina	24	54	21	29	15	18	18	41	11	15	25	34	33
15	Searight	4	35	37	29	10	24	39	25	21	36	12	15	25

For the sake of comparing negotiations--the distance from tract #11, the negotiated tract, has been made 20 miles to **ALL MILLS**. This means all organizations have an equal chance of purchasing this wood. Tract #14 is the 100% measured tract and does not require cost calculations.

Table 3. Product definitions and prices.

Product	Minimum DBH	Minimum top diameter
Hardwood sawtimber (oak & ash, no. 2 & better)	14	12
Hardwood sawtimber (other mixed, no. 2 & better)	14	12
Hardwood crosstie material	12	10
Hardwood pulpwood	8	4
Pine chip-'n-saw and small sawtimber	10	6
Pine large sawtimber and veneer	14	10
Pine utility poles	12	8
Pine pulpwood	6	4

GENERAL INFORMATION

The market is strong for most products. Wood supplies have been adequate at most mills, but recent wet weather has reduced most woodyard supplies.

Cruising should be done in 2-inch diameter classes—no heights are necessary. Appropriate local weight tables are attached and are also included in the spreadsheet on your diskettes. The worksheet also provides a summary of weights and costs per acre and for the entire tract by product and a bid

summary where you can input your bid prices and compute product and total values. You may expand this worksheet to assist your work in any manner you see fit.

HARVESTING COSTS (cut, skid and load): Pulpwood & CNS — $ 9.50/ton
Sawtimber and poles — $ 5.90/ton

HAULING COSTS:

Pulpwood (zoned)—$0.09 per mile per ton (0-25 miles from mill)
—$0.07 per mile per ton (26-50 miles from mill)
—$0.06 per mile per ton (51+ miles from mill)

Sawtimber and poles—$0.07 per mile per ton (all distances)

All hauling will be done with trucks, no wood will be moved by rail or barge.

OVERHEAD COSTS: $0.30 per ton variable costs for all products ***bid.***

SEVERANCE TAXES (included in spreadsheet):

PRODUCT	TAX RATE PER TON	TAX RATE PER UNIT VOLUME
Hardwood sawtimber (all) and crossties	$0.05712	$0.50/mbf Doyle
Hardwood and pine pulpwood	$0.0862	$0.25/standard cord
Pine chip-'n-saw and small sawtimber	$0.862	$0.25/standard cord
Pine large sawtimber and veneer	$0.857	$0.643/mbf Scribner
Pine poles	$0.2143	$1.607/mbf Scribner

Example bid price determination for pine pulpwood and veneer/large sawtimber

Assume: Tract is 40 road miles from your mill or to a mill with which you have negotiated a price for the product.
Total tract size is 42.5 acres
Delivered or negotiated prices: pine pulpwood $23.50/ton; pine veneer/large sawtimber $59.75/ton

Pine pulpwood:

15.66 tons/acre (from cruise) X 42.5 acres = 665.55 tons on tract
Harvesting costs = $9/ton X 665.55 tons = $5989.95
Hauling cost =$0.07/ton/mile X 40 miles X 665.55 tons = $1863.54
Severance tax = $0.0862/ton X 665.55 tons = $57.37
Overhead/operating costs (variable)= $0.30/ton X 665.55 tons = $ 199.66
Delivered price = $23.50/ton X 665.55 tons = $15640.42
Total costs = harvesting costs + hauling costs + severance tax + variable overhead/operating costs
= $5989.95 + $1863.54 + $57.37 + $199.66 = $8110.52
Net price = delivered price – total costs
= $15640.42 – $8110.52= $7529.90
Net price/ton = $7529.90/665.55 tons
= $11.31/ton (or @ 2.675 tons/cords, $30.26/cord)

Pine veneer/large sawtimber:

25.74 tons/acre (from cruise) X 42.5 acres = 1093.95 tons on tract
Harvesting costs = $5.40/ton X 1093.95 tons = $5907.33
Hauling costs =$0.07/ton/mile X 40 miles X 1093.95 tons=$3063.06
Severance tax = $0.0857/ton X 1093.95 = $93.75
Overhead/operating costs (variable) = $0.30/ton X 1093.95 tons =$328.18
Delivered price = $59.75/ton X 1093.95 tons = $65363.51
Total costs = harvesting costs + hauling costs + severance tax + variable overhead/operating costs
= $5907.33 + $2625.48 + $93.75 + $328.18 = $8954.74
Net price = delivered price – total costs
= $65363.51 – $8954.74 = $56408.83
Net price/ton = $56408.83/1093.95 tons
=$51.56/ton (or @ 7.5 tons/mbf Scribner, $386.73/mbf Scribner)

You can afford to pay $11.31 per ton ($30.26/cord) for pine pulpwood and $51.56/ton ($386.73/mbf Scribner) for pine veneer/large sawtimber and break even (no profit). If you can buy the timber for less, the difference is profit for your company. In a real world wood shortage (wet weather, etc.), you may pay more than breakeven price for one or more products in order to keep your mill(s) running. Other products will be handled in the same manner, except delivered prices for products sold on the open market (not used at your mill) will have to be negotiated with potential purchasing companies. The total bid price will be the total amount you are willing to pay for all the products on the tract. You may gain market information from bid openings.

DISCUSSION

Table 4 is an example bid summary sheet for a single company's cruise, cost and value computations for one tract. Field cruise information is input into a spreadsheet-based inventory processor. The bid summary sheet shows weights, volumes and costs for each product. The processor calculates a "breakeven stumpage price." This is the price that can be paid if no profit or loss is desired. The company can either accept this price or adjust the price per ton for one or more products, based on delivered prices to mills and the market, to determine an "assigned stumpage price." The company can opt to simply adjust either of these bids, based on the perceived need for wood at their mill. At the later bid openings, companies often "bump" the bid in an effort to buy at least one tract during the practicum—not a sound financial decision necessarily, but one based on "company pride." Students very quickly form a close relationship among themselves and with their procurement manager. There is stiff competition and collusion would not be considered! The students and procurement foresters perceive the practicum very seriously, taking the loss of a stand or large amounts of money "left on the table" (large gap between high bid and second bid) with consternation. Table 5 gives an example summary for bids on a single tract, showing typical variation in weights, by product, and total bid values.

As noted earlier, the timber inventory is done by dbh only allowing use of local weight tables. The inventory portion of the practicum is kept to a minimum. The class is not intended to improve inventory skills, therefore field time is minimized and simplified. Emphasis is placed on the logistical and economic decisions that must accompany the decision of whether to cruise a tract, the products that will be merchandized, harvesting and hauling the wood, and other considerations that affect the price offered for a that tract. Industrial foresters discuss with students the importance of understanding your competitors and the market. Substantial time is spent in negotiating prices for products that either cannot be used by a company, or that might be sold at an advantage to another

mill due to excessive distance to a company's own mill. Managers share their own and their real-world company's wood procurement philosophy. The industrial foresters are encouraged to interact with the students on both a professional and social basis. They are reminded they are serving as role models for the students and how they conduct themselves can influence a student's perceptions and career choices.

One evening is dedicated to a panel discussion among the industrial foresters and a question and answer time between the students and foresters. The foresters are encouraged to address topics such as their company's procurement organization, negotiating with landowners and other professionals, the importance of integrity and ethics, environmental concerns related to harvesting (best management practices, protecting water quality, etc.), their educational and professional background, coursework they deem useful for students interested in procurement, and other issues related to forest management and wood procurement. The students gain an excellent understanding that wood procurement is much more than cruising timber! They realize that wood procurement involves a clear understanding of forest inventory methods, a good grasp of financial principles, an appreciation and respect for the environment, and the necessity of being able to communicate with a variety of people with diverse backgrounds and a multitude of objectives and expectations.

The industrial foresters give feedback that the practicum is also useful to them. For lump sum sales in which they participate they do not know how the other bidders inventoried the tract. They have no idea of the variability of volume estimates occurring among bidders due to either differences in sampling intensity and methods, differing objectives, or random chance. When the weights are presented by product for each company, they learn about the inherent variability and have a better understanding of the circumstances that control the range of bids submitted. The industrial foresters have also indicated that their having to verbally express their personal and company philosophies and procedures to the students enhances their understanding of their own careers and the motivations and concerns of their employer. Foresters often call the School of Forestry inquiring how they can participate in the practicum. It is not difficult to fill the eight industry slots available each year.

This course is currently one of two wood procurement courses taught at Auburn University. The other is taught by a retired woodlands manager from a major paper company. He draws on his experiences and invites a number of individuals from industry to address specific issues during 3-hour lab periods. Auburn University will be changing from the quarter system to semesters in fall, 2000. These two courses will be combined into one. A portion of the course will continue to detail important issues by industry participants, while the field practicum described here will become a required three-day "field" exercise. There are also plans to incorporate a negotiating shortcourse, taught over a two- or three-week period, where students will learn and practice personal and group negotiating skills.

Courses such as the ***Industrial Wood Procurement Practicum*** can serve to improve relations between the School and employers by giving them a direct hand in the education of forestry students. Industry participants leave the ***Practicum*** with a good idea of our students' capabilities. Many job opportunities are generated through the ***Practicum***, sometimes with job offers being made "on the spot." Not all subjects lend themselves to involving potential employers or clients. When possible, however, such an exercise is highly valuable to both students and outside participants enhancing not only the students' education, but the profession as well.

Tables 4 and 5 are on the following page.

Table 4. Example bid summary sheet showing output of inventory processor, costs and values.

FY483 -- Industrial Wood Procurement Practicum – Bid Summary Sheet

Company Name: MAP **Tract #10**

Weight and volume summary by product

	Pine				*Hardwood*				
	Pulp	CNS/ Sm. Saw.	Veneer/ Lg. Saw.	Utility Poles	Pulp	Oak/Ash Saw/Ven	Mixed Hard. Saw/Ven	Crossties	**TOTAL**
Tons	688.3	626.0	1142.3	616.4	1026.8	550.9	495.2	186.1	**5331.9**
Volume	257.3	234.0	152.3	82.2	354.1	63.0	56.6	21.3	xxxx
(vol.units)	cords	cords	mbf-Scr.	mbf-Scr.	cords	mbf-Doyle	mbf-Doyle	mbf-Doyle	

TOTAL COST PER TON (sum of harvesting, hauling, severance tax and overhead costs)

$	11.69	13.04	6.99	9.56	11.69	7.80	7.80	7.80

BREAKEVEN stumpage price/ton and value (delivered price - total cost)

Stumpage $	13.31	21.96	48.01	55.44	8.31	37.20	32.20	27.20	xxxx
Value $	9163	13750	54845	34172	8536	20495	15948	5061	**$161,970**

ASSIGNED stumpage price/ton (what you are willing to pay per ton) -- (OPTIONAL)

Stumpage $	13.00	20.00	49.50	56.00	9.50	35.00	30.00	25.00	XXXX
Value $	8947.90	12520.00	56543.85	34518.40	9754.60	19281.50	14856.00	4652.20	**$160,773**

Enter Actual Bid: $160,001

Table 5. Summary of bids for an example tract.

BID SUMMARY -- FY483 INDUSTRIAL WOOD PROCUREMENT PRACTICUM										
Number of bidders =4					Tract 10			55 acres		
	Summary of tons on entire tract by product									
	----------PINE----------				**----------HARDWOOD----------**					
Company Name	**Pulp**	**CNS/ Small Saw**	**Veneer/ Large Saw**	**Poles**	**Pulp**	**Oak/Ash Saw/ Veneer**	**Mixed Saw/ Veneer**	**Crossties**	**Total Pine+ Hard.**	**Lump sum bid**
	----------(tons)----------									
MAP	688	626	1142	616	1027	551	495	186	5332	$160,001
WOOD	765	696	1269	685	1141	612	550	207	5924	$183,550
BOOTH	701	685	1203	670	952	520	575	177	5483	$170,344
LIMB	598	544	993	536	893	479	431	162	4636	$136,237
MEAN	**688**	**638**	**1152**	**626**	**1003**	**540**	**513**	**183**	**5344**	**$162,533**