Direct Marketing of Produce by an Urban Farm

M. TAYLOR AND D. YOUNG, SCHOOL OF ECONOMIC SCIENCES, WSU, AND B.HAMMOND, UNIVERSITY OF PUGET SOUND

The Seattle Youth Garden Works (SYGW) is a non-profit organization that works to empower homeless and at-risk youth by employing them at Marra Farm, a small farm in South Park, Washington. While their job training focus is intended to help the youth transition into more stable employment, SYGW must also be a good farm production and business manager. The previous abstract described the production plan developed for Marra Farm to increase both production intensity and value. This abstract describes a direct marketing strategy to maximize revenue in support of SYGW's youth activities.

The recommended marketing strategy is to sell shares in a community supported agriculture (CSA) program, which provides weekly deliveries of seasonal produce to members. A CSA has several advantages over other direct marketing strategies (e.g., farmers' markets). First, CSA shares are typically sold at the beginning of the growing season and provide a stable early season income source. Second, subscriptions can be sold to people with a full explanation of SYGW's mission, the challenges they face, and the benefits they provide to Seattle's youth and general citizenry. Farmers' market customers are looking for the best produce at the best price, while CSA customers understand they are purchasing from a farm unique in the training it provides for homeless and at-risk youth. Third, the youth could expand their job skills by participating in gardening activities, sales of CSA shares, coordination of deliveries, and/or creating weekly newsletters.

The estimated revenue to SYGW from a CSA structure is based on data gathered from existing Seattle-area CSA's and is listed in Table 1. Our production plan estimates a maximum of 66 shares delivered from May through November (29 weeks). Using the average CSA share price listed in Table 1, the estimated revenue from a CSA marketing strategy is $43,908 per year.

Table 1. Community Supported Agriculture Share Prices in Seattle Area

	Average	Standard Deviation	Minimum	Maximum	Number of Observations
Season Price	$665.27	$150.84	$475.00	$990.00	11
Season Duration (weeks)	21	2	20	25	9

Note: Share prices are based on a medium-sized basket, which feeds 2 to 3 people, and weekly delivery

Part 4. Bioenergy Cropping Systems Research

Preliminary Straw Characterization of Five Biofuels Crops in the Pacific and Inland Northwest

K. OTT-BORRELLI AND B.PAN, DEPT. OF CROP AND SOIL SCIENCES, WSU

Plant residues high in cellulosic fiber compounds offer many benefits as fuel products and value-added by-products. Characterization of complex carbohydrates (hemicellulose, cellulose and lignin) of various crop residues and derivative products is important because their presence can make bioconversion of these products difficult and expensive. In the Pacific and Inland Northwest, researchers are considering the production of crops such as canola (*Brassica napus*), camelina (*Camelina sativa*), and flax (*Linum narbonense*) in addition to weed species like *Arundo donax* for potential oilseed, cellulosic fuels and products. The purpose of this research was to provide a preliminary assessment of the fiber content and carbon to nitrogen ratio (C:N) of five plant species which can assist to determine their usefulness for biofuel production, rotational crops, soil amendments, and other by-products. Crop residues of camelina, flax, canola, wheat, and mid-season *Arundo donax* were collected from irrigated fields in the Columbia Basin and analyzed for fiber using the ANKOM automated system and fiber bags and C:N using a dry combustion method. Estimated average cellulose did not differ significantly for camelina (45.71%), canola (48.41%) and flax (41.59%) but these values were significantly higher than wheat (34.08%) and *Arundo* (32.55%), which did not differ from one another. Similarly, percentage of lignin/cutin in camelina

(14.36%), flax (14.90%) and canola (12.69%) did not differ significantly from one another but were significantly greater than wheat (5.50%) and *Arundo* (6.70%) which did not differ from one another. Carbon to nitrogen ratio for these crops was as follows: camelina (109:1), flax (72:1), canola (117:1), wheat (39:1) and *Arundo* (25:1). Overall fiber trends were similar between camelina, flax and canola, which are in the families, Brassicacea and Linaceae (flax), but variable from wheat and *Arundo*, which are in the Poaceae family. High cellulose content in camelina, flax and canola suggest that these varieties have good potential as cellulosic feedstocks, but the high lignin content indicates that cellulose would be difficult to extract from these crops. However, plant residues with a high C:N could be ideal for soil amendments and carbon sequestration. Lower contents of complex compounds in wheat and *Arundo* may have resulted from the presence of grain in the wheat sample and immature *Arundo.* A slight indication that management practices or location could impact levels of carbon compounds in plant residues was also noted in preliminary findings. Further research on the nature and properties of specific lignin and cellulose compounds in these crops would be necessary to fully understand their potential uses and hindrances. Understanding the biochemical make up of these products can allow producers and researchers realize the potential uses and overcome difficult production barriers.

Oilseed Crop Fertility

R.KOENIG, A. HAMMAC, AND W.PAN, DEPT CROP AND SOIL SCIENCES, WSU

A project was established as part of the WA State Biofuels Cropping Systems Program (see http://css.wsu.edu/biofuels/final_report_2008/), to 1) Develop baseline growth and nutrient uptake curves to characterize major oilseed crop nutrient needs; 2) Develop nutrient (primarily nitrogen and sulfur) management recommendations for major oilseed crops that maximize oil yield and quality, 3) Disseminate information on oilseed crop fertility management to growers in extension bulletins, and to the scientific community in peer-reviewed journal articles and 4) Evaluate phosphorus requirements of oilseed crops, and rotational benefits of oilseed alternatives on subsequent crops of wheat.

Winter canola was planted on chemical fallow at Davenport and Pullman in fall 2007. Treatments consisted of a range of nitrogen rates (0 to 160 lb N/acre in 40 lb increments with 15 lb S/acre) applied in treatments replicated four times in a randomized complete block experiment design. Winter canola failed to establish at the Pullman location due to lack of moisture. At Wilke, establishment was acceptable but the stand suffered major damage due to a June 2008 frost and was abandoned. Spring canola was sown on the winter site near Pullman; spring canola and camelina were sown on a new site near Davenport. Camelina failed to establish. Spring canola was grown to maturity and harvested to determine seed yield, oil yield and oil quality (oil yield and quality analysis is pending).

An additional P rate study was conducted north of Kamiak Butte to determine phosphorus requirement for oilseed crops (canola, camelina, and flax) compared to lentil in 2008.

There was a curvilinear response to N rate for spring canola at both locations. At both locations, the slope of the response indicated 4.5 lb seed yield increase with each lb of nitrogen applied. There was an 87 lb/ac (15.5%) seed yield response to sulfur at Davenport but no response at Pullman. Nitrogen application timing did not influence yield. There was no significant effect of P rate. This may be a result of elevated residual phosphorus levels, crop growth limited by water availability, or increased crop phosphorus uptake efficiency for all species.

Composition of Cereal Crop Residue in Dryland Cropping Systems

T.L. STUBBS, DEPT. OF CROP AND SOIL SCIENCES, WSU AND A.C. KENNEDY, USDA-ARS LAND MANAGEMENT AND WATER CONSERVATION RESEARCH UNIT

Cereal crops and cultivars vary in their composition, and also in their decomposition and contribution to soil organic matter. Large quantities of cereal crop residue that decompose slowly present an obstacle to the adoption of minimum till or no-till seeding, conversely lower quantities of crop residue that decompose more rapidly may leave the soil vulnerable to erosion by wind and water. Decomposition of cereal crop residues is associated with fiber and nutrient content, and growers have observed differences in decomposition among cultivars; however, little information exists on their residue characteristics. Cultivars of spring barley, spring wheat, and winter