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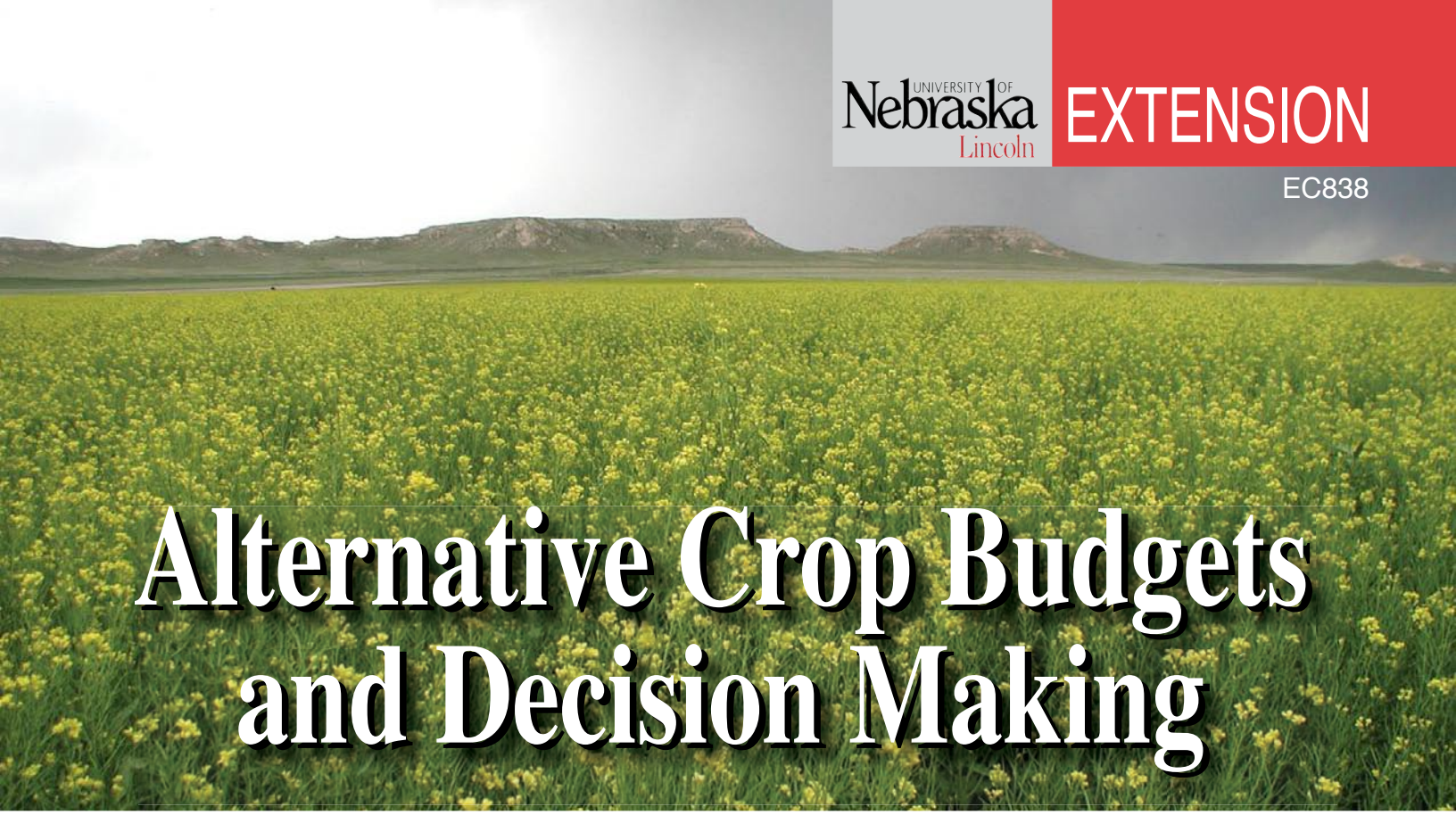

Alternative Crop Budgets and Decision Making

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The Nebraska Panhandle presents many unique opportunities for agricultural producers interested in alternative crops. Traditional crops grown in the area are sugarbeets, dry edible beans, alfalfa hay, and corn on irrigated acres and wheat on dryland acres.

The potential benefits of crop diversification include increased profit, reduced wind and water erosion, improved use of labor resources, and reduced economic and production risk. Although these benefits have been discussed for years, adopting alternative crops is a difficult process for many producers. The barriers to including alternative crops in the rotation are significant enough to offset the benefits to producers who have difficulty meeting cash flow and profitability constraints. Some of these barriers include government policies that are designed to support traditional commodity crops; slow development of infrastructure; crop insurance programs that do not cover small acreage crops; availability of research dollars for crop breeding and production; availability of limited crop protection chemicals; and lack of quality economic and marketing data, including cost of production information.

The goal of this publication is to provide producers with information that can be used to estimate the production costs for alternative crops. The development of any alternative crop enterprise should include a financial analysis with an emphasis on potential profitability, risk, and cash flow expected from the crop. Estimates of the production costs are critical to the planning process associated with including a new crop into any farm rotation. These costs can help producers identify the cash needs, total costs, and projected income based on yield estimates. Many alternative crops for western Nebraska have similar production practices, and a procedure to adjust an existing crop budget for a new crop will be outlined in the final section of this publication.

Factors to Consider in New Enterprise Adoption

There are a number of factors for crop producers to consider as they approach any new enterprise. Market development, investment cost, and resource allocation are critical to the success of new enterprises. Further, personal preferences and the producer's knowledge base can impact the success of new crops in these systems.

Learning curve

Any new process has a steep learning curve. The ability to use informational resources will significantly diminish the number of experimental failures that producers will have with new crops. Willingness to learn from other producers, Cooperative Extension personnel, local crop consultants, and company representatives will help producers achieve success with a new crop more quickly. One key is to match the intended crop with the management, marketing and production abilities of the producer. This also will limit the frustrations that come with new endeavors.

Cultural practices

Many producers are looking for crops that will complement their existing system. The key is to recognize the potential for the new crop under the current cropping system. If the cultural practices required for new-crop success are

not presently being used on the farm, the crop may not be a great "fit" in the operation. For example, an alternative crop that requires the incorporation, through tillage, of a specific herbicide will not fit an entirely no-till system. Including this crop will not be as successful for this producer as it might be for someone who uses a conventional or reduced-tillage system. These cultural practices will impact the types of crops grown, the seasons that crops are grown in, and the success of those crops in the system.

Markets

In addition to producing the crop, marketing is critically important to the successful adoption of alternative crops. First, the alternative crop must have a market delivery point within a reasonable distance. The term "reasonable" depends on the bulkiness and value of the crop, and the ability of the producer to coordinate transportation of the crop to market. Market development for a specific region can be a challenge for producers of crops grown in small quantities.

Developing a viable market requires some base quantity of product to make establishing delivery, handling, and processing facilities cost effective for purchasers. A key challenge is establishing enough local production in a new area to establish local delivery points. Developing the market channel needs to be done in conjunction with developing the ability to grow the crop in a region.

Risk associated with marketing the crop is another critical consideration in new-crop development. Size of the market, both domestic and export, is critical. If the market is very small and could be easily oversupplied, knowledge of the markets and expected production is critical. For many small-quantity crops, establishing a production contract may be a necessary component of the marketing strategy. High-cost crops are another area where the production contract may be a necessary risk management tool. Information about production contracts and their uses is available in *An Introduction to Agricultural Production and Marketing Contracts*, NF00-449.

Cash flow

The timing and amount of cash outflows and inflows from alternative crops are an important consideration when diversifying the production system. For a producer that has historically been in a single-crop system or has produced low-cost crops, the transition to different crops and higher cash-cost crops can be challenging. Communicating with lenders and developing accurate cash flow projections are critical. As crop diversity increases, the potential for additional cash expenditures at different times will also increase. In addition, the timing of cash inflows should be considered. Timing sales or timing payments for crops under contract is important planning information for producers who have a sizeable investment in alternative crops. If the crop needs to be stored for several months, or maybe years, before sale, the timing of these sales will be critical to the farm and potentially the lender.

Resource availability

Availability of machinery, labor, capital, and management resources may be the factors that make or break a new-crop enterprise on a farm. Each of these factors must be adequately supplied for the new crop without causing significant harm to the other enterprises.

The machinery needed may be a limiting factor for the producer of new crops. There may be a need for a sizeable investment to purchase or lease special machinery for a crop. The ability to use existing machinery for an alternative crop can be a benefit for selecting that crop for the system. In addition, the time of the machinery's use can create resource allocation problems. If a machine is presently used heavily during the early spring, the new crop should be one that uses the same machine during a different time. The timeliness of field operations is critical for most crop production, and waiting for a specific machine to become available can create serious problems in the production system.

For many producers, labor resource availability is a concern at times such as planting and harvest. If the new crop uses labor resources at times of the year when labor is idle or underused, this enterprise may create efficiencies in labor use. The opposite effect may occur if the labor requirements for the new enterprise coincide with the seasons that labor is fully used for other enterprises in the system. Acquiring quality labor is difficult at best and may be even more difficult if the need is only for a short time. Evaluating the fit of a new enterprise can be done by completing a quick labor budget in the same manner that a cash flow budget would be done.

Capital resources are always scarce, but changing to more cash or machinery intensive crops may cause additional strain on capital resources. Knowing the expected capital needed for the new enterprise is critical. Obtaining support from lenders will assist in the smooth transition to a new enterprise on many farms.

A new enterprise will use more management resources in the initial years than it will once the crop is incorporated into the system. In the first few years, using management resources across the entire farm needs to be monitored closely. The operation may be able to incorporate the new crop, but the need to manage the entire system continues to exist. Increased management needs on a small number of acres should not cause the producer to lower the management quality on the remainder of the farm.

Crop rotations

The position of the alternative crop in the rotation can have both positive and negative effects on the following crops, possibly for several years. Knowing the expected impacts on the following crops is necessary to determine if the crop will fit into the existing system. Pest cycles, herbicide carryover, water availability, soil condition, and erosion impacts are just a few of the factors to consider as a new crop is implemented into the system.

Land leases

Before a new crop is planted on leased land, the producer should review the terms of the lease and consult with the landowner. Landowners may not be interested in trying a new crop in the system or they may be unwilling to attempt to market a share of an unfamiliar crop. The length of the lease may also affect the interest in attempting to grow some new crops on leased land. There can be additional risk associated with the production of new crops, and some landowners will be uncomfortable with the assumption of additional risk. Including alternative crops into a system can affect the decision whether to crop-share or cash lease on a farm.

Government programs and regulations

Although the planting restrictions that were in place for the receipt of government program payments have been relaxed over the past several years, the producer needs to know how the production of a new crop may affect program payments. Determining any restrictions and or regulations associated with specific crops before planting will avoid surprises later. For crops that fall under the fruit and vegetable restrictions, this can significantly reduce the amount of direct payments that the farm may be eligible to receive. Being aware of these types of potential pitfalls will be critical to making a new crop successful.

Many crops can be grown experimentally in a research setting with specific crop protection chemicals that may not be labeled for production use. It is critical that the producer be aware of the production package that is available for the new crop prior to putting the crop into production. The ability to apply pesticides in a timely manner may be the difference between success and failure for some crops.

If the government has developed crop insurance or price protection programs for the crop being considered, the risk will be reduced dramatically. These tools will also make it easier to predict the potential cash flows for a crop. Lenders will ask for the potential to recover any cost if the crop fails or the market price is lower than expected.

Personal preferences, lifestyle, and goals

Deciding to adopt a new enterprise will be influenced by the personal preferences of the producer. If producers are not able to work the farm during specific seasons due to personal or business reasons, a crop that requires attention during that time may not be a good fit for the operation. Irrigation may work well for some, but others may have no interest in including irrigation into the existing system. Livestock is another enterprise that should be carefully considered before it is included on a farm previously dedicated to crop production. Many producers are not comfortable with livestock and are not willing to make the necessary changes in their lifestyle to incorporate a livestock enterprise into their farm.

Crop production budgets

This publication will assist in the initial planning process for cash flows, budgeting, and the development of some production expectations. The following section includes the cost of production budgets that have been developed with the assistance of several producers. These budgets are based on practices typical for the crop but may not match the actual practices of any one producer. All production cost budgets are full-cost budgets, including costs for overhead, land, and management. The values shown for machinery and irrigation depreciation and interest are based on values from the University of Nebraska Cooperative Extension publication *Nebraska Crop Budgets*, EC04-872. The budgets do not include direct or counter-cyclical payments under the provisions of the 2000 Farm Bill.

Chicory

Chicory *(Cichorium intybus)* production in western Nebraska has increased to more than 1,000 acres. Using chicory in pet foods has brought the industry to western Nebraska, and the potential for future use in the human consumption markets exists. This increased demand should support the expansion of acres over the next several years. Developing additional markets are necessary for this high-value crop to thrive in the region as acreage grows. Although chicory is one of the higher valued alternative crops being developed in the Nebraska Panhandle, the profit potential remains, largely due to the relatively high value of the crop in the present markets.

Table 1 shows net returns based on the estimated cost of production in *Table 2* and a range of possible yields and prices. *Table 2* describes the expected production cost for chicory in the Panhandle. The cost and return estimates in *Tables 1* and *2* do not include USDA crop program payments for the land in production. This budget is based on the use of large machinery at nearly 1,000 acres of chicory per year, thus keeping the depreciation and interest costs reasonably low.

Table 1. Estimated net returns ($ per acre) for chicory production in western Nebraska for a range of yields and prices.

Price	Chicory Yield (tons per acre)				
($ per ton)	16.0	18.0	20.0	22.0	24.0
$40.00	($87.61)	($13.61)	$60.39	$134.39	$208.39
$45.00	($7.61)	$76.39	$160.39	$244.39	$328.39
$50.00	$72.39	$166.39	$260.39	$354.39	$448.39
$55.00	$152.39	$256.39	$360.39	$464.39	$568.39
$60.00	$232.39	$346.39	$460.39	$574.39	$688.39

Table 2. Enterprise budget for chicory, center pivot irrigated, western Nebraska.

Variable Costs	Cost per Acre					
Operation	**Labor**	**Fuel & Lube**	**Repairs**	**Materials & Custom**	**Total**	**Your Cost**
Disc	0.70	1.04	1.78		3.52	
Spread Fertilizer	0.78	0.28	0.10	43.30	44.46	
Fertilizer 120 lb N and 50 lb P						
Till-N-Plant (bed)	1.66	2.07	7.70	4.14	15.57	
Treflan 1 pint/ac @ $4.14/acre						
Plant	2.68	1.45	4.51	70.00	78.64	
Chicory Seed @ $70.00/acre						
Spray	0.81	0.13	0.25	13.52	14.71	
Raptor 3 oz/acre @ $3.94/oz *5 lb N @ $0.26/lb N* *Surfactant 0.2 pint/ac @ $2.00/pint*						
Cultivate	1.53	1.00	2.10		4.63	
Cultivate	1.53	1.00	2.10		4.63	
Cultivate	1.53	1.00	2.10		4.63	
Hand Weeding				50.00	50.00	
Irrigation (Pivot)	6.00	39.09	11.72	17.40	74.21	
Electric Hookup Charge $17.40/acre						
Defoliate	1.88	1.18	3.11		6.17	
Lift	2.31	2.02	12.58		16.91	
Haul to Pile				54.00	54.00	
Custom Trucking 18 ton/ac @ $3.00/ton						
Subsoil	1.65	1.25	2.41		5.31	
Spray	0.81	0.13	0.25	14.18	15.37	
Distinct 6 oz/acre @ $2.08/oz *5 lb N @ $0.26/lb N* *Surfactant 0.2 pint/ac @ $2.00/pint*						
Operating Interest	*10% for 8 months*				26.18	
Total Variable Costs	**23.87**	**51.64**	**50.71**	**266.54**	**$418.94**	
Fixed Costs						
Machinery						
Depreciation					37.88	
Interest					22.05	
Irrigation						
Depreciation					30.54	
Interest					12.04	
Land						
Cash Rent	*@ $150.00 per acre*				150.00	
Operator Management	*10% of variable costs*				41.44	
General Overhead	*5% of variable costs*				20.72	
Total Fixed Costs					**$314.67**	
Total of All Costs					**$733.61**	

Chickpeas

Over the past several years, the development of new varieties and the potential for production under dryland and limited irrigation conditions has generated interest in chickpeas *(Cicer arietinum)* for Nebraska Panhandle producers. Chickpea acreage is on the rise in the region, and it is expected that chickpeas will remain in western Nebraska crop rotations. Virtually all domestic pulse-crop production is marketed through processors, with about one-fifth of the production contracted and the majority (80 percent) sold on the spot market. The pricing of chickpeas is influenced by conditions in major foreign markets, including Canada, Mexico, Australia, and Turkey. On a global basis, the relatively small production of chickpeas in the United States limits the ability of domestic producers to influence world markets and to consistently produce sufficient quantities to a reliable supplier for large users. A key to developing of a viable, regional chickpea industry is finding secondary markets for chickpeas that fail to meet human food grades. While much lower priced as livestock feed, chickpeas can play a role in livestock rations as a substitute for higher cost protein sources.

In recent years, the pricing of chickpeas has been calculated according to a three-tiered pricing schedule based on seed size. The price schedule and expectations are presented in *Table 3*. In reference to *Table 3*, it should be noted that the current marketing loan program would only affect this pricing schedule at the smallest seed size. The USDA grades all chickpeas for splits, color, size, and foreign material. In addition, based on expected end use, the industry may have specific standards by which the crop is sorted. The 2002 Farm Bill included a marketing loan program that will serve as a price support mechanism for domestic chickpea production. This program has helped stabilize producer revenues and develop new markets. However, the program loan rate of $7.56 per hundredweight is only applicable for desi-type chickpea small enough to fall through a 20/64 (0.31 inch) screen.

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Close-up of chickpea pods nearing maturity in western Nebraska.

Table 3. Example price and seed size expectations for chickpea production.

Seed Size	Large	Medium	Small
	> 0.35 in	**0.31 - 0.35 in**	**< 0.31 in**
Price ($/cwt)	$17.00	$12.00	$6.00
Expected Percentage of Crop (dryland)	60-70%	20-30%	5-15%
Expected Percentage of Crop (irrigated)	85-95%	3-10%	2-5%

Tables 4 and *5* show costs and returns for chickpea produced in irrigated and dryland cropping systems. For different seed yields, revenues presented in these tables are based on a three-tiered pricing schedule (see *Table 3*) and a contract price of $17.00 per hundredweight for large kabuli-type chickpea. At a given contract price, data in *Tables 4* and *5* indicate that net returns can be dramatically affected by even small reductions in seed yield. Therefore, it is important to note that, although large variations in chickpea seed yield can occur from year to year, seed yields would be expected to average 1,300 and 2,200 pounds per acre in dryland and irrigated cropping systems, respectively. In addition to seed yield reductions, there are also potential losses associated with reduced seed size that are not quantified in these tables.

Table 4. Cost and return ($ per acre) for dryland chickpea at different seed yields.

	Dryland Chickpea Seed Yield (lbs/acre)				
Seed Price ($/cwt)	**600**	**900**	**1,200**	**1,500**	**1,800**
(Large 65%) 17.00	66.30	99.45	132.60	165.75	198.90
(Medium 25%) 12.00	18.00	27.00	36.00	45.00	54.00
(Small 10%) 6.00	3.60	5.40	7.20	9.00	10.80
Total Revenue ==>	$87.90	$131.85	$175.80	$219.75	$263.70
(-) Total Cost	$182.73	$183.93	$185.13	$186.33	$187.53
(=) Net Return ==>	**($94.83)**	**($52.08)**	**($9.33)**	**$33.42**	**$76.17**

Table 5. Cost and return ($ per acre) for irrigated chickpea at different seed yields.

	Irrigated Chickpea Seed Yield (lbs/acre)				
Seed Price ($/cwt)	**1,200**	**1,500**	**1,800**	**2,100**	**2,400**
(Large 85%) 17.00	173.40	216.75	260.10	303.45	346.80
(Medium 10%) 12.00	14.40	18.00	21.60	25.20	28.80
(Small 5%) 6.00	3.60	4.50	5.40	6.30	7.20
Total Revenue ==>	$191.40	$239.25	$287.10	$334.95	$382.80
(-) Total Cost	$311.86	$313.06	$314.26	$315.46	$316.66
(=) Net Return ==>	**($120.46)**	**($73.81)**	**($27.16)**	**$19.49**	**$66.14**

The economic viability of a specialty crop such as chickpea will ultimately depend on several factors, including market development, contract and seed pricing, pesticide availability, and production capability. Producers are cautioned to be aware of the potential impact of all such factors before attempting large-scale production.

Estimated cost of production for both dryland and irrigated chickpeas are shown in *Tables 6* and *7*.

Table 6. Production costs for dryland chickpeas in western Nebraska.

Variable Costs	**Cost per Acre**					
Operation	**Labor**	**Fuel & Lube**	**Repairs**	**Materials & Custom**	**Total**	**Your Cost**
Spread Fertilizer	0.53	0.16	0.20	10.50	11.39	_____
	Fertilizer 30 lb N and 20 lb P					
Plant	1.05	0.55	0.90	73.00	75.50	_____
	Chickpea Seed 130 lb/ac @ $0.55/lb					
	Inoculant @ $1.50/acre					
Spray Pre-emergence				11.25	11.25	_____
	Spartan 2.6 oz/acre @ $44.60/lb					
	Custom Spray @ $4.00/acre					
Spray for Grass (25%)				2.64	2.64	_____
	Poast 1 pt/ac @ $52.51/gal					
	Custom Spray @ $4.00/acre					
Combine	1.80	1.82	1.99		5.61	_____
Haul				1.00	1.00	_____
	Custom Haul 10 cwt/acre @ $0.10/bu					
Storage				3.00	3.00	_____
	On-Farm @ $0.06/cwt/month for 5 months					
Operating Interest	*10% for 6 months*				4.95	_____
Total Variable Costs	**3.38**	**2.53**	**3.09**	**101.39**	**115.34**	_____
Fixed Costs						
Machinery						
Depreciation					14.49	_____
Interest					10.20	_____
Land						
Interest	*$400.00 per acre @ 5.0%*				20.00	_____
Real Estate Taxes	*$400.00 per acre @ 1.75%*				7.00	_____
Operator Management	*10% of variable costs*				11.53	_____
General Overhead	*5% of variable cots*				5.77	_____
Total Fixed Costs					**68.99**	
Total of All Costs					**184.33**	

Table 7. Production costs for irrigated chickpeas in western Nebraska.

Variable Costs	Cost per Acre					
Operation	**Labor**	**Fuel & Lube**	**Repairs**	**Materials & Custom**	**Total**	**Your Cost**
Spray Preplant				23.98	23.98	_____
	Sonalan 2 pt/ac @ $32.29/gal					
	Lasso 4 pt/ac @ $23.81/gal					
	Custom Spray @ $4.00/acre					
Field Cultivate	0.60	0.39	0.22		1.21	_____
Spread Fertilizer	0.53	0.16	0.20	10.50	11.39	_____
	Fertilizer 30 lb N and 20 lb P					
Plant	1.05	0.55	0.90	79.00	81.50	_____
	Chickpea Seed 140 lb/ac @ $0.55/lb					
	Inoculant @ $2.00/acre					
Spray Pre-emergence				11.65	11.65	_____
	Spartan 2.6 oz/acre @ $44.60/lb					
	Custom Spray @ $4.00/acre					
Spray for Grass (25%)				2.64	2.64	_____
	Poast 1 pt/ac @ $52.51/gal					
	Custom Spray @ $4.00/acre					
Irrigation	1.53	6.36	1.4	17.40	26.69	_____
	Electric Hookup Charge $17.40/acre					
Combine	1.80	1.82	1.99		5.61	_____
Haul				1.75	1.75	_____
	Custom Haul 17.5 cwt/acre @ $0.10/bu					
Storage				5.25	5.25	_____
	On-Farm @ $0.06/cwt/month for 5 months					
Operating Interest	*10% for 6 months*				6.75	_____
Total Variable Costs	**5.51**	**9.28**	**4.71**	**152.17**	**178.43**	_____
Fixed Costs						
Machinery						
Depreciation					16.41	_____
Interest					12.27	_____
Irrigation						
Depreciation					4.56	_____
Interest	*$40.00 per acre @ 6.25%*				25.00	_____
Land						
Interest	*$750.00 per acre @ 5.0%*				37.50	_____
Real Estate Taxes	*$750.00 per acre @ 1.75%*				13.13	_____
Operator Management	*10% of variable costs*				17.84	_____
General Overhead	*5% of variable costs*				8.92	_____
Total Fixed Costs					**135.63**	
Total of All Costs					**314.06**	

Brown Mustard

Brown mustard *(Brassica juncea)* is a relatively new entrant into the crop production systems in the region. The crop fits an agronomic need for a spring annual broadleaf crop to complement wheat in the dryland system.

There are few markets in Nebraska for brown mustard. The crop has been introduced to the area through a closed cooperative. The primary market is with Blue Sun BioDiesel through Progressive Producers in Sidney, Neb. They require producers to purchase an equity position in the company for crop delivery. This allows producers to enter into crop production with an expectation of the price and delivery point for the crop. With the further development of a commercial market for the crop, brown mustard will be an excellent alternative cash crop for western Nebraska producers. Canola is another crop option for producers interested in biodiesel production.

Table 8 shows the potential net return for brown mustard under dryland conditions in western Nebraska. The price is set at $0.12 per pound for the 2004 and 2005 crop years due to the availability of grant funds intended to assist early growers. This price support is not expected after the 2005 crop, and prices will be based on the market demand. *Table 9* shows similar relationships for irrigated brown mustard production.

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Brown mustard field at the flowering stage in Scotts Bluff County, Nebraska.

Table 8. Estimated net returns ($ per acre) for dryland brown mustard production in western Nebraska for a range of yields and prices.

Price	Brown Mustard Yield (lbs/acre)				
($/lb)	**600**	**800**	**1,000**	**1,200**	**1,400**
$0.07	($68.43)	($54.73)	($41.03)	($27.33)	($13.63)
$0.09	($56.43)	($38.73)	($21.03)	($3.33)	$14.37
$0.10	($44.43)	($22.73)	($1.03)	$20.67	$42.37
$0.12	($38.43)	($14.73)	($8.97)	$32.67	$56.37
$0.13	($32.43)	($6.73)	$18.97	$44.67	$70.37

Table 9. Estimated net returns ($ per acre) for irrigated brown mustard production in western Nebraska for a range of yields and prices.

Price	Brown Mustard Yield (lbs/acre)				
($/lb)	**1,800**	**2,000**	**2,200**	**2,400**	**2,600**
$0.07	($113.92)	($100.22)	($86.52)	($72.82)	($59.12)
$0.09	($77.92)	($60.22)	($42.52)	($24.82)	($7.12)
$0.10	($41.92)	($20.22)	$1.48	$23.18	$44.88
$0.12	($23.92)	($0.22)	$23.48	$47.18	$70.88
$0.13	($5.92)	$19.78	$45.48	$71.18	$96.88

Table 10. Projected cost of production for brown mustard under a conventional dryland system.

Variable Costs	**Cost per Acre**					
Operation	**Labor**	**Fuel & Lube**	**Repairs**	**Materials & Custom**	**Total**	**Your Cost**
Spray - Fall				13.00	13.00	_____
	Roundup Ultra 20 oz/acre @ $0.31/oz					
	Banvel 4 oz/acre @ $0.70/oz					
	Custom Spray @ $4.00/acre					
Disc	1.00	0.76	0.90		2.66	_____
Spread Fertilizer	0.78	0.28	0.10	10.40	11.56	_____
	Fertilizer 40 lb N					
Incorporate Chemical	0.67	0.38	0.50	9.60	11.15	_____
	Treflan 24 oz/acre @ $0.40/oz					
Plant	0.68	0.47	1.22	8.65	11.02	_____
	Brown Mustard Seed 5 lb/acre @ $1.73/lb					
Combine	1.52	1.46	1.62		4.60	_____
Haul				1.20	1.20	_____
	Custom Haul 8 cwt/acre @ $0.15/cwt					_____
Operating Interest	*10% for 8 months*				3.68	_____
Total Variable Costs					$55.87	_____
Fixed Costs						
Machinery						
Depreciation					11.59	_____
Interest					7.80	_____
Land						
Interest	*$325.00 per acre @ 5.0%*				16.25	_____
Real Estate Taxes	*$325.00 per acre @ 1.75%*				5.69	_____
Operator Management	*10% of variable costs*				5.59	_____
General Overhead	*5% of variable costs*				2.94	_____
Cooperative Shares					5.00	_____
Total Fixed Costs					**$54.86**	
Total of All Costs					**$110.73**	

Table 11. Projected cost of production for brown mustard under an irrigated system.

Variable Costs	Cost per Acre					
Operation	Labor	Fuel & Lube	Repairs	Materials & Custom	Total	Your Cost
Disc	1.00	0.76	0.90		2.66	_____
Spread Fertilizer	0.78	0.28	0.10	39.00	40.16	_____
	Fertilizer 150 lb N					
Incorporate Chemical	0.67	0.38	0.50	9.60	11.15	_____
	Treflan 24 oz/acre @ $0.40/oz					
Plant	0.68	0.47	1.22	13.84	16.21	_____
	Brown Mustard Seed 8 lb/acre @ $1.73/lb					
Pivot Irrigate	3.33	21.72	6.51	2.50	34.06	_____
	Connect Charge $2.50/acre					
Combine	1.52	1.46	1.62		4.60	_____
Haul				3.00	3.00	_____
Custom Haul	*20 cwt/acre @ $0.15/cwt*					
Operating Interest	*10% for 8 months*				7.46	_____
Total Variable Costs					**$119.30**	_____
Fixed Costs						
Machinery						
Depreciation					11.59	_____
Interest					7.80	_____
Irrigation						
Depreciation					16.97	_____
Interest					11.03	_____
Land						
Interest	*$750.00 per acre @ 5.0%*				37.50	_____
Real Estate Taxes	*$750.00 per acre @ 1.75%*				13.13	_____
Operator Management	*10% of variable costs*				11.93	_____
General Overhead	*5% of variable costs*				5.97	_____
Cooperative Shares					5.00	_____
Total Fixed Costs					**$120.92**	
Total of All Costs					**$240.22**	

Canola *(Roundup Ready®)*

The popularity of canola *(Brassica napus)* oils has opened a market for the production of this oilseed crop in western Nebraska. Presently, the same company that is purchasing the brown mustard crop for inclusion in a biodiesel product is also interested in locally grown canola for the same use. With the potential for industrial uses and human consumption, canola could be a large crop for the region, with the eventual opening of a crushing facility in the area.

The limiting factor for brown mustard production is the ability to control weeds during the cropping season. Using transgenic canola with the Roundup Ready® technology has for all practical purposes eliminated the weed problems in canola. This technology allows the producer to eliminate the weed competition and achieve higher yields. There is a significant technology fee ($13.00 per acre) associated with transgenic canola, but added yields and lower herbicide expenditures could offset this cost. The expected production and net returns are shown in *Table 12*.

There are some changes between the cost structure of canola and the cost of brown mustard associated with the seed cost, technology fee, and herbicide program used. The costs for irrigated canola are shown in *Table 13*. At present, the technology fees have limited the profitability of canola in dryland systems.

Table 12. Estimated net returns ($ per acre) for irrigated canola production in western Nebraska for a range of yields and prices.

Price	Canola Yield (lbs/acre)				
($/lb)	1,800	2,100	2,400	2,700	3,000
$0.07	($145.46)	($124.91)	($104.36)	($83.81)	($63.26)
$0.09	($109.46)	($82.91)	($56.36)	($29.81)	($3.26)
$0.11	($73.46)	($40.91)	($8.36)	$24.19	$56.74
$0.13	($37.46)	$1.09	$39.64	$78.19	$116.74
$0.15	($1.46)	$43.09	$87.64	$132.19	$176.74

Table 13. Projected cost of production for Roundup Ready® canola under an irrigated system.

Variable Costs	Cost per Acre					
Operation	Labor	Fuel & Lube	Repairs	Materials & Custom	Total	Your Cost
Disc	1.00	0.76	0.90		2.66	
Spread Fertilizer	0.78	0.28	0.10	28.76	29.92	
	Fertilizer 60 lb N 40 lb P 20 lb S					
Field Cultivate	0.51	0.38	0.35		1.24	
Plant	0.68	0.47	1.22	35.50	37.87	
	Canola Seed 5 lb/acre @ $4.50/lb					
	Roundup Ready® Tech Fee @ $13.00/acre					
Spray for Weeds	Custom			6.88	6.88	
	Roundup Ultra 16 oz/acre @ $0.18/oz					
	Custom Spray @ $4.00/acre					
Fertilize w/Pivot	0.33			16.70	17.03	
	Fertilizer 60 lb N					
	Injector Rent @ $0.50/acre					
Pivot Irrigate	3.33	21.72	6.51	2.50	34.06	
	Connect Charge $2.50/acre					
Combine	1.52	1.46	1.62		4.60	
Haul				3.60	3.60	
	Custom Haul 24 cwt/acre @ $0.15/cwt					
Operating Interest	*10 % for 8 months*				9.67	
Total Variable Costs					**$147.52**	
Fixed Costs						
Machinery						
Depreciation					11.43	
Interest					7.77	
Irrigation						
Depreciation					16.97	
Interest					11.03	
Land						
Interest	*$750.00 per acre @ 5.0%*				37.50	
Real Estate Taxes	*$750.00 per acre @ 1.75%*				13.13	
Operator Management	*10% of variable costs*				14.74	
General Overhead	*5% of variable costs*				7.37	
Cooperative Shares					5.00	
Total Fixed Costs					**$124.94**	
Total of All Costs					**$272.46**	

Turfgrass seed

The turfgrass seed industry is beginning to develop a production area under center pivot irrigation in western Nebraska. This perennial crop is well suited for the area and has the potential to be a high value production crop if managed properly. Much of the turfgrass seed produced in the region is contracted by seed companies and is grown using proprietary seed varieties. The potential for this crop in western Nebraska is presently limited by the need to transport the cleaned seed to packaging facilities several hundred miles from Nebraska.

Eric Nielsen

Grass seed field setting seed in Box Butte County, Nebraska.

Grass-seed contracts specify price and payment methods for clean seed. These contracts will pay the producer for the seed after cleaning, so the ability to produce a clean crop is critical. Each variety and species of grass seed will be priced differently based on the potential yield and demand for the seed. Lower yielding and more specialized grasses can demand a premium on the market and will have higher contract prices, while more common, higher yielding varieties will be lower priced.

Several grass seed companies are interested in grass seed production in western Nebraska as the present production areas in the Pacific Northwest face challenges to the production practices used, most specifically environmental restrictions on burning grass stubble. The western Nebraska grower does not face the same restrictions at the present time and may have a production advantage. Developing infrastructure for cleaning and packaging grass seed in the area will be critical to the success of the turfgrass seed industry over the next several years. *Table 14* shows the potential for gross returns for Kentucky Bluegrass *(Poa pratensis)* production under several different yield and price scenarios. The lower prices are typically associated with the higher yielding varieties, while the higher prices correspond to the lower yielding types.

The timely availability of water limits this crop to those producers that have the ability to apply water early in the spring and late in the fall. Sprinkler irrigation with well water is critical to meeting the needs of this crop in western Nebraska.

Tables 15 and *16* depict the establishment and production costs for Kentucky Bluegrass seed production. Typically, turfgrass seed production does not occur in the year that the crop is planted and established. The costs of this establishment year are amortized over the four-year life of the seed-producing stand at an 8 percent annual interest rate. This distributes the cost of establishing the crop across the production years in *Table 16*.

Table 14. Estimated net returns ($ per acre) for turfgrass seed production in western Nebraska for a range of yields and prices.

Price	Grass Seed Yield (lbs/acre)				
($/lb)	300	500	700	900	1,100
$0.50	($433.54)	($356.14)	($278.74)	($201.34)	($123.94)
$0.75	($358.54)	($231.14)	($103.74)	$23.66	$151.06
$1.00	($283.54)	($106.14)	$71.26	$248.66	$426.06
$1.25	($208.54)	$18.86	$246.26	$473.66	$701.06
$1.50	($133.54)	$143.86	$421.26	$698.66	$976.06
$1.75	($58.54)	$268.86	$596.26	$923.66	$1,251.06

Table 15. Projected cost of production for Kentucky Bluegrass turfgrass seed establishment in western Nebraska.

Variable Costs			**Cost per Acre**			
Operation	**Labor**	**Fuel & Lube**	**Repairs**	**Materials & Custom**	**Total**	**Your Cost**
Disc	0.59	0.77	0.81		2.17	_____
Plow	2.06	2.69	1.98		6.73	_____
Spread Fertilizer	0.45	0.31	0.06	53.93	54.75	_____
	Fertilizer 90 lb N 60 lb P 10 lbS					
Field Cultivate	0.53	2.69	1.98		5.20	_____
Field Cultivate	0.53	2.69	1.98		5.20	_____
Drill Oats	1.25	1.62	3.30	12.00	18.17	_____
	Oat Seed 2 bu/acre @ $6.00/bu					
Irrigation - Season	4.36	21.47	10.21		36.04	_____
Swath	1.32	1.10	0.37		2.79	_____
Bale	1.89	1.67	2.47		6.03	_____
Harrow	0.44	0.29	0.46		1.19	_____
Spray	Custom			12.16	12.16	_____
	Roundup 1.50 pint/acre @ $5.77/pint *Custom Spray @ $3.50/acre*					
Drill Grass	1.25	1.62	3.30	12.00	18.17	_____
	Grass Seed 4 lb/acre @ $3.00/lb					
Spray	Custom			22.14	22.14	_____
	Liquid N 20 lb/acre @ $0.28/lb *Bronate 2 pint/acre @ 5.65/pint* *Banvel 3 oz/acre @ $0.58/oz* *Custom Spray @ $3.50/acre*					
Spread Fertilizer	0.45	0.31	0.06	59.88	60.70	_____
	Fertilizer 135 lb N 40 lb P 8 lb S					
Operating Interest	10% for 8 months				16.76	_____
Total Variable Costs					**268.17**	_____
Fixed Costs						
Machinery						
Depreciation					25.45	_____
Interest					20.64	_____
Irrigation						
Depreciation					47.54	_____
Interest					20.30	_____
Land						
Interest	*$750.00 per acre @ 5.0%*				37.50	_____
Taxes	*$750.00 per acre @ 1.75%*				13.13	_____
Operator Management	*10% of variable costs*				26.82	_____
General Overhead					13.41	_____
Total Fixed Costs					**$204.79**	
Total of All Costs					**$472.96**	
Return from Oat Hay	*(3.0 tons/acre @ $50.00/ton)*				**$150.00**	
Net Cost of Production - Establishment Year					**$322.96**	
Total Amortized Costs (four-year productive stand) - 8% interest over four years					**$97.51**	

Table 16. Projected cost of production for turfgrass seed production (after establishment) in western Nebraska.

Variable Costs	Cost per Acre					
Operation	**Labor**	**Fuel & Lube**	**Repairs**	**Materials & Custom**	**Total**	**Your Cost**
Seed Certification				2.00	2.00	_____
Seed certification fee @ $2.00/acre						
Spread Fertilizer	0.45	0.31	0.06	15.59	16.41	_____
Fertilizer 30 lb N 10 lb S 5 lb Fe						
Harrow	0.44	0.29	0.46		1.19	_____
Spray Weeds	Custom			18.14	18.14	_____
Curtail 3 pint/acre @ $4.88/pint						
Custom spray @ $3.50/acre						
Hand Hoeing				12.00	12.00	_____
Hand labor @ $12/acre						
Spray Insects	Custom			9.12	9.12	_____
Warrior 2 oz per acre @ $2.81/acre						
Custom spray @ $3.50/acre						
Irrigation - Season	3.97	19.33	9.18		32.48	_____
Spray Aerial	Custom			16.28	16.28	_____
Tilt 4 oz/acre @ $3.07/oz						
Aerial Spray @ $4.00/acre						
Swath	1.32	1.10	0.37		2.79	_____
Combine	2.38	1.54	3.77		7.69	_____
Truck	Custom			1.50	1.50	_____
Hired Trucking 5 cwt/acre @ $0.30/cwt						
Clean, Bag				55.00	55.00	_____
Clean, Bag, Cert. 5 cwt/acre @$11.00/cwt						
Burning	0.61	0.39	0.90	12.00	13.90	_____
Propane 16 gal/acre @ $0.75/gal						
Pivot Fertilize	0.33			17.90	18.23	_____
Fertilizer 30 lb N						
Injector Rent @ $0.50/acre						
Spray Weeds	Custom			12.80	12.80	_____
Prowl 2.5 pint/acre @ $3.72/pint						
Custom spray @ $3.50/acre						
Spread Fertilizer	0.45	0.31	0.06	67.51	68.33	_____
Fertilizer 150-40-0-10S						
Operating Interest	10% for 8 months				19.19	_____
Total Variable Costs					**$307.04**	_____
Fixed Costs						
Establishment Costs					97.51	_____
Machinery						
Depreciation					21.63	_____
Interest					15.43	_____
Irrigation						
Depreciation					47.54	_____
Interest					20.30	_____
Land						
Interest	*$750.00 per acre @ 5.0%*				37.50	_____
Taxes	*$750.00 per acre @ 1.75%*				13.13	_____
Operator Management	*10% of variable costs*				30.70	_____
General Overhead	*5% of variable costs*				15.35	_____
Total Fixed Costs					**$299.09**	
Total of All Costs					**$606.14**	

Forage Crops

An increasing number of acres are being seeded to annual forage crops in western Nebraska to provide alternative feed sources for the livestock industry. The market for these crops is relatively volatile based on the price and availability of alternative forages, either hay or grazing. In years that alternative resources are limited, annual forages are usually in higher demand and are higher priced. In other years, market interest in annual forages can be difficult to secure. Consequently, the majority of these forage crops are fed by the producer who grows them. They are used as an alternative feed source, which can be put up as hay and fed in the seasons when grazing is not available. Some of these forages have the potential to be harvested in several ways, although this publication only considers putting them up for hay. Silage and multiple grazing methods are viable alternatives for the harvest of these annual forages if the conditions and the end use are compatible.

The yield of annual dryland forages can be highly variable from year to year and by location. This variability in conjunction with the price volatility can make it difficult to project a cash flow for these crops. *Table 17* shows the large swings that can potentially happen with the annual forages under rain-fed conditions. This usually limits the production of these forage crops to producers who have an on-farm use for the production. The actual cost of these forages can be factored into the entire farm cost structure, which includes the livestock that the crop is fed to.

Eric Nielsen

Foxtail millet under sprinkler irrigation in Scotts Bluff County, Nebraska.

Table 17. Estimated net returns ($ per acre) for dryland foxtail millet annual forage production in western Nebraska for a range of yields and prices.

Price	Annual Forage Yield (tons/acre)				
($/ton)	1.0	1.5	2.0	2.5	3.0
$35.00	($78.46)	($60.96)	($43.46)	($25.96)	($8.46)
$40.00	($73.46)	($53.46)	($33.46)	($13.46)	$6.54
$45.00	($68.46)	($45.96)	($23.46)	($0.96)	$21.54
$50.00	($63.46)	($38.46)	($13.46)	$11.54	$36.54
$55.00	($58.46)	($30.96)	($3.46)	$24.04	$51.54
$60.00	($53.46)	($23.46)	$6.54	$36.54	$66.54

The production cost estimates for the annual forages are based on a custom harvest situation *(Table 18)* that can be adjusted to reflect owned equipment using the partial budgeting process outlined in the last section. Many producers of annual forages do not have enough of them to justify owning the type of machinery necessary to put up a hay crop in a timely basis. If this crop is a new enterprise for the farm, the investment in harvest machinery can be cost prohibitive for a small acreage of hay production. Timeliness of harvest is critical to the forage quality that is required to make this a valuable crop in the system. If the harvest equipment is not sufficient for the timely harvest, a good quality crop can go into storage at a much lower quality than expected, forcing the producer to supplement the forage at a higher level and cost than intended. *Table 18* is a foxtail millet budget to be used as a base for summer annual forages, with the recognition that other crops may be grown as well.

Table 18. Projected cost of production for foxtail millet under a dryland system.

Variable Costs	Cost per Acre					
Operation	**Labor**	**Fuel & Lube**	**Repairs**	**Materials & Custom**	**Total**	**Your Cost**
Spray		Custom		11.44	11.44	_____
	Roundup Ultra 24 oz/acre @ $0.31/oz					
	Custom Spray @ $4.00/acre					
Disc	1.00	0.76	0.90		2.66	_____
Spread Fertilizer	0.78	0.28	0.10	17.60	18.76	_____
	Fertilizer 40 lb N 30 lb P					
Roller Harrow	1.38	0.49	0.62		2.49	_____
Plant	1.49	0.68	1.97	2.70	6.84	_____
	Foxtail Millet Seed 15lb/acre @ $0.18/lb					
Swath		Custom		8.00	8.00	_____
	Custom Swath @ $8.00/acre					
Bale		Custom		12.00	12.00	_____
	Custom Bale @ $12.00/acre					
Stack		Custom		5.00	5.00	_____
	Custom Stack @ $5.00/acre					
Operating Interest	*10% for 8 months*				4.48	_____
Total Variable Costs	**4.65**	**2.21**	**3.59**	**57.93**	**$71.67**	_____
Fixed Costs						
Machinery						
Depreciation					4.15	_____
Interest					4.95	_____
Land						
Interest	*$325.00 per acre @ 5.0%*				16.25	_____
Taxes	*$325.00 per acre @ 1.75%*				5.69	_____
Operator Management	*10% of variable costs*				7.17	_____
General Overhead	*5% of variable costs*				3.58	_____
Total Fixed Costs					**$41.79**	
Total of All Costs					**$113.46**	

Dry Peas

A limiting factor in continuous dryland rotations is the development of a crop that will be harvested early enough to allow for the timely planting of the winter wheat crop in the fall. If this crop were a broadleaf plant, that would be an additional benefit. The dry pea *(Pisum sativum)* will fit both of these criteria, as a broadleaf plant that is harvested in late July to early August, leaving adequate time before planting wheat in September.

The limiting factor to dry pea production in the Nebraska Panhandle is a viable market that is close enough for farmers to deliver the production. With a market for the peas, the production levels will increase quickly. If price is adequate to cover the production cost as shown in *Tables 19* and *20*, the acres of production will be available. Peas are no more expensive to produce than corn, sunflowers or chickpeas, all of which have been produced on significant dryland acres in recent years. A pea splitting plant has been considered for the northern Panhandle with interest from packaging companies for the output. If this facility were to be built, the demand for dry peas in western Nebraska will increase dramatically. The 2002 Farm Bill provided for a commodity loan program in dry peas along with the program described earlier for chickpeas.

Eric Nielsen

Dry peas with flowers and pods in western Nebraska.

Table 19. Estimated net returns ($ per acre) for dryland dry pea production in western Nebraska for a range of yields and prices.

Price	Dry Pea Yield (cwt/acre)				
($/cwt)	**10.0**	**12.0**	**14.0**	**16.0**	**18.0**
$6.00	($59.67)	($48.47)	($37.27)	($26.07)	($14.87)
$6.50	($54.67)	($42.47)	($30.27)	($18.07)	($5.87)
$7.00	($49.67)	($36.47)	($23.27)	($10.07)	$3.13
$7.50	($44.67)	($30.47)	($16.27)	($2.07)	$12.13
$8.00	($39.67)	($24.47)	($9.27)	$5.93	$21.13
$8.50	($34.67)	($18.47)	($2.27)	$13.93	$30.13
$9.00	($29.67)	($12.47)	$4.73	$21.93	$39.13

Table 20. Estimated net returns ($ per acre) for irrigated dry pea production in western Nebraska for a range of yields and prices.

Price	Dry Pea Yield (cwt/acre)				
($/cwt)	**30.0**	**33.0**	**36.0**	**39.0**	**42.0**
$6.00	($71.39)	($54.59)	($37.79)	($20.99)	($4.19)
$6.50	($56.39)	($38.09)	($19.79)	($1.49)	$16.81
$7.00	($41.39)	($21.59)	($1.79)	$18.01	$37.81
$7.50	($26.39)	($5.09)	$16.21	$37.51	$58.81
$8.00	($11.39)	$11.41	$34.21	$57.01	$79.81
$8.50	$3.61	$27.91	$52.21	$76.51	$100.81
$9.00	$18.61	$44.41	$70.21	$96.01	$121.81

Table 21. Dryland dry pea costs of production for western Nebraska.

Variable Costs	Cost per Acre					
Operation	**Labor**	**Fuel & Lube**	**Repairs**	**Materials & Custom**	**Total**	**Your Cost**
Plant	1.05	0.55	0.90	22.15	24.65	_____
	Pea Seed 2 bu/ac @ $8.00/bu *Inoculant @ $2.00/acre* *10-34-0 @ $4.15/acre*					
Spray Pre-emergence				22.60	22.60	_____
	Roundup 24 oz/ac @ $35.00/gal *Pursuit 0.72 oz/ac @ $15.25/oz* *Crop Oil 2 pt/ac @ $4.24/gal* *Custom Spray @ $4.00/acre*					
Combine	1.80	1.82	1.99		5.61	_____
Haul				1.25	1.25	_____
	Custom Haul 12.5 cwt/acre @ $0.10/cwt					
Storage				3.75	3.75	_____
	On-Farm @ $0.06/cwt/month for 5 months					
Operating Interest	*10% for 6 months*				2.89	_____
Total Variable Costs	**2.85**	**2.37**	**2.89**	**49.75**	**$60.79**	_____

Fixed Costs		
Machinery		
Depreciation		14.07
Interest		9.69
Land		
Interest	*$400.00 per acre @ 5.0%*	20.00
Taxes	*$400.00 per acre @ 1.75%*	7.00
Operator Management	*10% of variable costs*	6.08
General Overhead	*5% of variable costs*	3.04
Total Fixed Costs		**$59.88**
Total of All Costs		**$120.67**

Table 22. Irrigated dry pea costs of production for western Nebraska.

Variable Costs			**Cost per Acre**			
Operation	**Labor**	**Fuel & Lube**	**Repairs**	**Materials & Custom**	**Total**	**Your Cost**
Spray Preplant				23.98	23.98	
	Sonalan 2 pt/ac @ $32.29/gal *Lasso 4 pt/ac @ $23.81/gal* *Custom Spray @ $4.00/acre*					
Field Cultivate	0.60	0.39	0.22		1.21	
Spread Fertilizer	0.53	0.16	0.20	15.50	16.39	
	Fertilizer 30 lb N and 20 lb P					
Plant	1.05	0.55	0.90	27.00	29.50	
	Pea Seed 3 bu/ac @ $8.00/bu *Inoculant @ $3.00/acre*					
Spray for Grass (25%)				2.64	2.64	
	Poast 1 pt/ac @ $52.51/gal *Custom Spray @ $4.00/acre*					
Irrigation	1.53	6.36	1.4	17.40	26.69	
	Electric Hookup Charge $17.40/acre					
Combine	1.80	1.82	1.99		5.61	
Haul				3.00	3.00	
	Custom Haul 30 cwt/acre @ $0.10/cwt					
Storage				9.00	9.00	
	On-Farm @ $0.06/cwt/month for 5 months					
Operating Interest	*10% for 6 months*				5.90	
Total Variable Costs	**5.51**	**9.28**	**4.71**	**98.52**	**$123.93**	
Fixed Costs						
Machinery						
Depreciation					16.41	
Interest					12.27	
Irrigation						
Depreciation					4.56	
Interest	*$40.00 per acre @ 6.25%*				25.00	
Land						
Interest	*$750.00 per acre @ 5.0%*				37.50	
Real Estate Taxes	*$750.00 per acre @ 1.75%*				13.13	
Operator Management	*10% of variable costs*				12.39	
General Overhead	*5% of variable costs*				6.20	
Total Fixed Costs					**$127.46**	
Total of All Costs					**$251.39**	

Partial Budgets for Decision Making

Adopting new crops into the existing production system can be evaluated using several methods within the budgeting process. Developing enterprise budgets can assist with the initial planning process; whole farm budgeting can be used to evaluate the entire farm with the inclusion of new enterprises; and partial budgeting may allow a new crop to be substituted in place of another crop without the effort of developing an entirely new whole-farm budget or for evaluating a change in production practices that may be under consideration.

This section will explain how a partial budget may be used to evaluate a new crop in a dryland system to replace summer fallow. For this example, the cropping system has been a three-year winter wheat — proso millet — summer fallow program. The example will replace the summer fallow component of this rotation with brown mustard to make a continuous crop system.

The partial budget is used to determine the change in net income based on the changes in costs and revenues from the production change being considered. There are four areas to consider when developing a partial budget: (1) The additional costs associated with the change being considered. For the following example, these costs will include the brown mustard production costs. (2) The reduced returns from any lost production or sales associated with the change should be considered. In the example, lost yield multiplied by price in both the winter wheat and proso millet crops will be evaluated. The first two items will then be totaled to determine the potential income reducing components from the change. (3) The additional returns need to be determined for the change. For this example, brown mustard yield multiplied by the expected price received could be used to determine additional returns. (4) Reduced costs of production need to be considered. In the example, summer fallow cost and the harvest and hauling cost reduction associated with reduced yields of winter wheat and proso millet will be included here. The example in *Table 19* shows how the partial budget can be used in the decision making process. For easier calculation, the example will not include the cost of land or any government payments. Land costs and government payments will be constant, whether the land is used for summer fallow or brown mustard production.

Table 23. Partial budgeting example for the replacement of summer fallow with brown mustard production.

Proposed Change: Replace summer fallow with brown mustard.		
(1) Additional Costs:		
Brown Mustard Production Costs	$88.30 per acre	$88.30
Total Additional Costs		**$88.30**
(2) Reduced Returns:		
Wheat Yield Reduction	Reduce from 40 bu/ac to 36 bu/ac * $3.20/bu	$12.80
Proso Millet Yield Reduction	Reduce from 20 cwt/ac to 18.5 cwt/ac * $5.87/cwt	8.81
Total Reduced Returns		**$21.61**
Total Additional Costs and Reduced Returns(A)		**$109.91**
(3) Additional Returns:		
Sales of Brown Mustard Production	750 lb/acre at $0.12 per pound	$90.00
Total Additional Returns		**$90.00**
(4) Reduced Costs:		
Fallow Costs	$24.46 per acre	$24.46
Reduced Harvest and Hauling Cost for Wheat	$0.13/bu for hauling and $0.13/ bu for harvest	1.04
Reduced Hauling Cost for Proso Millet	$0.30 per cwt for hauling	0.45
Total Reduced Costs		**$25.95**
Total Additional Returns and Reduced Costs (B)		**$115.95**
Net Change in Income (B - A)		**$6.04**

Conclusions

This publication provides agricultural producers and advisors with an additional planning tool as they investigate the opportunities presented through producing alternative crops. This should not be used as a production guide for these crops, but as a planning resource for economic decision making. There are a number of production guides for these crops listed below. Enterprise budgets for additional crops that have received more widespread adoption are available in *Nebraska Crop Budgets*, EC04-872.

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