

Agriculture: Lifeblood of the San Luis Valley

Agriculture has long been the basis of the economy in the San Luis Valley. This is a rural area dependent on crops and livestock. The Valley, with an average elevation of 7600', is surrounded on three sides by the San Juan and Sangre de Cristo mountains. All crops are grown with irrigation water whose source is the abundant snow in the mountains. The principal crops grown are potatoes, alfalfa, native hay, barley and wheat. Smaller acreages of vegetable crops are extremely valuable and include spinach, head lettuce, and carrots.

Potato Production Basics

Potatoes have been grown here since 1882. The first commercial crop was freighted to the mines at Leadville for a good price. Ninety percent of Colorado's potatoes are grown in the San Luis Valley. Prominent varieties grown here include: Centennial Russet, Russet Norkotah, Russet Nugget and one red variety, Sangre. All these varieties were developed at Colorado State University's SLV Research Center, except for Norkotah. San Luis Valley potatoes are recognized as having outstanding quality; they are sold as fresh-market potatoes to restaurants and groceries all across the South.



Potatoes

The estimated acreage and yield for 2000 indicate 75,600 acres harvested, an excellent yield of 370 cwt/acre, and a production of 27.9 million hundred-weight (cwt) (see Crop Statistics INSERT). Growers' yields have increased from 265 cwt/acre in 1975 to 370 cwt/acre in 2000; however, potato prices have not improved. The price was \$3.95/cwt in 1975, but only \$2.65/cwt in 2000. The potato price improved to \$9.55 per cwt in 2001 and the crop value was \$204 million, a new record.

The San Luis Valley offers a near perfect environment for growing potatoes. Growing at 7600 feet elevation, the potatoes thrive in the warm, bright sunny days and cool nights. These environmental factors result in potatoes with high solids content which impart excellent taste and texture qualities. The cold winters also mean less insect pests and fewer diseases to contend with. The high mountains also provide a natural barrier to imported disease and insect problems.

Growing Potatoes Potatoes are planted in early May and harvest begins in early Sep-tember and runs through early October. Small whole or cut potato pieces are planted 4-6 inches deep; the row width is usually 34 inches. Plants emerge in early June, tubers begin to form in early July, and the tops begin to die down in mid- to late August. The crop is irrigated every 2 ½ - 3 days during the growing period and this may require 20 irrigations, a total of 18 inches of water. Many times the tops are killed with a mechanical beater or with vine kill agent to set the skins properly. Harvest requires lots of labor and lots of trucks. Some growers will harvest for 30 days before they are done.

Nearly all the potato crop will be put into storage before being washed and sorted in the warehouse,

then shipped. High technology potato storages regulate the temperature and humidity as well as providing air flow for the potatoes. Each load of potatoes is inspected by the Federal/State Inspectors who insure they meet the stringent size and grade regulations. Most potato warehouses ship to the fresh market 10-12 months of the year.

Potato diseases can be carried on the fleshy tuber used as seed. Certified potato seed growers plant disease-free seed, rogue their fields, and have their fields inspected. Certified seed (tubers) produced here are grown to be low in disease; they are highly desired by local and out-of-state growers. Certified potato seed sales are valued at about \$12 million each year from production on 16,000 acres.

Hay Production

Hay was Colorado's leading crop in value of production; alfalfa hay was valued at \$361 million in 2001. The San Luis Valley is a major hay-producing region. Our hay was valued at \$49 million in 2000 (see INSERT). Alfalfa is the Valley's second most valuable crop, after potatoes.

Dairies in northern Colorado and southern New Mexico depend on getting 'dairy quality' hay from this area. In response to the rapid increase in dairies in the High Plains area, our alfalfa acreage has increased from 110,000 to 165,000 acres in the last 10 years. The alfalfa price has been good for the last 5 years, averaging \$90 per ton with super supreme quality bringing \$20 per ton more.



Alfalfa

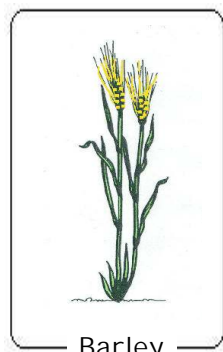
Growing Alfalfa Half the alfalfa is grown under center pivots but the other half is grown with flood irrigation. Alfalfa is a perennial crop; the stand usually lasts 5-7 years before being replanted. After the establishment year, it is usually harvested 3 times per year. The first cutting is mid-June; the second in late July; and the third anytime from early September to early October. The second cutting usually gets some rain on it and tests the lowest; the third is cut immature and tests highest. Often, the third cutting

will have a relative feed value over 200. Much of the lower quality alfalfa hay is used to support the local beef cow herds or is trucked to feedlots for grinder hay.

Each harvest begins with the swather which lays the crop down and crimps the stems; then the hay needs to dry before it can be baled. Often, the drying requires 7-10 or more days. After the hay is baled into small, rectangular or the more popular ton bales (4'x4'), it is stacked for storage or loaded for transport. The alfalfa crop re-quires more water than any others grown here; requiring from 25 - 35 inches. Weeds and insects must be controlled to maintain dairy quality.

Small Grain Production

Small grains are grown in a two year rotation with potatoes. The grains produce high residue and some weed and disease control advantages for potatoes.



Barley

Barley This area is the major barley producing region for Colorado; it produces over 85% of the state's barley. Most of the barley grown here is malt barley; much of it is contracted to Coors Brewing Co. They contract over 40,000 acres. Coors barley is grown with their own variety, Moravian 14. It is planted with certified seed and purchased only if it meets Coors' stringent quality requirements.

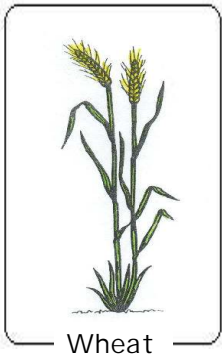
Coors' barley is tested for moisture, protein, skinned and broken kernels, mold, foreign materials and many other criteria. The minimum germination is 97%, required because of the brewing process. The barley is steeped in a malt house to germinate it and turn the starches to sugars, then toasted and ground into barley malt. Growers are paid a premium price if their barley meets the high standards. Coors new variety was first grown on Coors fields in

1996 and their growers averaged 133 bu/acre that year, about 30 bu/acre better than with the older variety. Growing Barley Malt barley is usually planted in early April and harvested in early August. Early planting is a strategy for harvesting ahead of the mid-August monsoon rains. Barley is irrigated every 3-4 days and requires about 16-18 inches of irrigation. Weeds and disease are important factors. Malt barley is usually swathed to hasten uni-form ripening, then it is combined with a pickup attachment. The barley is either put in farm bins or delivered to the Coors elevator in Monte Vista.

A considerable acreage of barley is grown for animal feed. Feed barleys produce high yields, but command a lower price compared to malt barley. Dairies are beginning to use a large quantity of two-row barley in their rations; the two-row barley is preferred because it has better bushel weight. The average yield of all barleys increased from 63 bu/acre in 1975 to 105.5 bu/acre in 1994 and to 133.5 in 1996 (see INSERT).

Wheat Three kinds of wheat are produced here: soft white spring wheat for crackers and cookies, hard red spring wheat for bread, and durum for macaroni and pasta products. Most of the soft white wheat is milled in Denver; some goes to the west coast. Most red wheat goes to Denver, but high quality red wheat may go to the west coast. The durum wheats go either to Arizona for milling or else for export. Wheat yields averaged 96 bu/-acre at \$2.80/bushel in 1993. The highest yield average was 107 bu/acre in 1998 when the price was only \$2.36/bushel.

Growing Wheat Wheat is a cool season crop, producing better yields under milder temperatures. The cool Valley nights and mild and bright sunny days are ideal for produc-ing plump kernels and high yields up to 160 bu/acre. Wheat is planted in April and not harvested until September. The long grain fill time contributes to large, plump kernels and high yields. Durums and red wheats require high protein grain; the soft whites require low protein. It is difficult to produce both high yield and high protein.

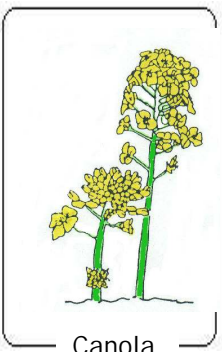


Wheat

Canola Canola is a relatively new crop in this area. There were 5500 acres in the early nineties, but the acreage dropped to zero after Intermountain Canola dropped their contracts. Now, canola is finding new acreage as hybrid seed production. Male and female rows are planted. Male rows are destroyed and female rows are harvested for seed. Good isolation from other fields and noxious weed control is required for certified hybrid seed production.

Growing Canola

Canola is planted in early May and harvested in September. The cool sunny, summer days are ideal for canola. Canola plants produce large yellow blossoms which make a field of yellow color for 30 days. From each bloom, the plant develops long, green cylindrical pods which contain small, dark seeds high in oil content.

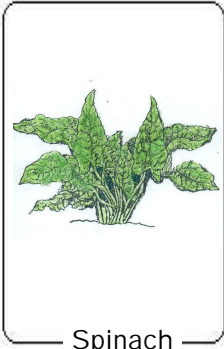


Canola

Vegetable Crop Production

Vegetable crops in the San Luis Valley produce more income than all of Colorado's fruit production, about \$25 million. These crops are high investment, high risk crops that can be considered risky because of erratic

produce prices.



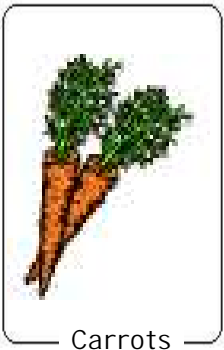
Spinach Spinach is a cool season crop grown locally on 1400-1700 acres. It will bolt and produce seed quickly in hot weather. Sometimes spinach is planted in Fall and overwintered for earlier harvest. Otherwise, it is planted weekly beginning in April to spread the harvests. Migrant labor is used for weeding and for harvest. Spinach leaves are hand picked at the rosette stage and each basket (plastic box now) is center iced immediately after picking, then top-iced in refrigerated trucks for transport to markets throughout the U.S. and Canada. Spinach production is centered in areas west of Alamosa, near Center, and near Blanca. Spinach's total production value has dropped with the acreage drop; the price has been fairly consistent at \$25-32 per cwt. The value of local production is still about \$3.1 million.



Lettuce Head lettuce is grown on about 1500 acres each year with yields averaging 270 cwt per acre. About 300 acres of this total will be Romaine this year. Although the lettuce is planted and cultivated with machinery, migrant labor is used for weeding, thinning and harvest. Lettuce is usually planted in stages starting May 1st and harvested from mid-July to October. After the heads are cut, the boxes are transported on special trucks to a vacuum cooler. Head lettuce is then shipped in refrigerated trucks to Midwest and Eastern markets.

The cold winters and dry climate minimizes disease and insect problems. Sprinkler irrigation is now used to produce a more uniform and higher quality head of lettuce. Lettuce production is centered in Center because of the location of the vacuum cooler plant. The vacuum cooler, trucks and crews move seasonally from Yuma, AZ, to southern New Mexico to the San Luis Valley for the summer, then back to New Mexico and back to Yuma, AZ, for the winter.

Carrots Carrots are also planted in stages to spread out the harvest dates. Planting begins in early May and the carrots are harvested from August through October. Long, thin baby carrots are encouraged by planting carrots thickly in narrow row, several rows on one wide bed. The warm sunny summer days and cool nights help produce a carrot that is very sweet and crisp. Carrots are dug mechanically and tugged to the processing plant where they are washed, graded, and cut. They are then trucked to the processing plant in California where they are stored, then peeled and bagged just prior to shipping. Nature Fresh was the first carrot producer here; they still grow organic carrots near Center. The California drought of 1990 was a factor in increasing carrot production here. Now, Grimmway of Bakersfield, CA, is the largest carrot producer in the Valley.



SLV carrot acreage has been increasing, up from 45% of the states' production in 1994. However, baby carrot acreage actually decreased because the use of wide beds produced higher yields. The carrots value was \$16 million in 1995. Probably, the value was similar in 2000 based on higher yields, but a lower price (\$9.60/cwt).

Crop Statistics Update

<i>San Luis Valley Grain and Hay</i> PRODUCTION STATISTICS						
<i>Field Crop</i>	<i>Year</i>	<i>Acres Harvested</i>	<i>Yield (Bu/acre) (Ton/acre)</i>	<i>Price (\$/bu) (\$/ton)</i>	<i>Production Value Per Acre</i>	<i>Total Production Value</i>
<i>Spring Wheat</i>	1975	9,000	53.0	\$3.23	\$171	\$1,500,000
	1995	23,000	89.0	\$4.30	\$383	\$8,800,000
	1997	33,500	92.5	\$3.16	\$292	\$9,796,000
	1998	25,000	107	\$2.36	\$253	\$6,301,000
	1999	33,000	97.5	\$2.40	\$234	\$7,704,000
	2000	32,000	86.5	\$2.65	\$229	\$7,335,000
<i>Spring Barley</i>	1985	89,000	63.0	\$2.64	\$166	\$14,800,000
	1995	65,500	115.5	\$2.95	\$341	\$22,405,000
	1997	62,500	124.5	\$2.98	\$371	\$23,199,000
	1998	58,000	133.0	\$2.84	\$378	\$21,925,000
	1999	61,000	122.0	\$2.54	\$310	\$18,903,000
	2000	76,000	131.5	\$3.15	\$414	\$31,481,000
<i>Alfalfa Hay</i>	1985	112,000	2.10	\$54.10	\$114	\$12,700,000
	1995	140,000	3.15	\$88.50	\$279	\$39,000,000
	1997	130,000	3.60	\$101.00	\$364	\$47,268,000
	1998	135,000	3.95	\$91.00	\$359	\$49,859,000
	1999	160,000	3.70	\$69.00	\$255	\$40,848,000
	2000	165,000	3.70	\$81.00	\$298	\$49,451,000
<i>Other Hay</i>	1985	106,000	1.30	\$53.80	\$70	\$7,400,000
	1995	59,000	1.80	\$85.00	\$153	\$9,000,000
	1997	140,000	1.90	\$106.00	\$201	\$28,196,000
	1998	90,000	1.95	\$101.00	\$197	\$17,901,000
	1999	90,000	1.75	\$63.50	\$111	\$10,033,000
	2000	84,000	1.65	\$83.50	\$138	\$11,573,000

**San Luis Valley Potato
PRODUCTION STATISTICS**

<i>Field Crop</i>	<i>Year</i>	<i>Acres Harvested</i>	<i>Yield (Cwt/acre)</i>	<i>Price (\$/cwt)</i>	<i>Production Value Per Acre</i>	<i>Total Production Value</i>
<i>Fall Potatoes</i>	1975	32,500	265	\$3.95	\$1047	\$34,000,000
	1992	66,000	335	\$4.05	\$1357	\$89,546,000
	1993	72,200	350	\$6.15	\$2363	\$155,411,000
	1994	73,700	350	\$3.55	\$1243	\$91,572,000
	1995	76,800	310	\$6.25	\$1938	\$148,800,000
	1996	77,800	375	\$1.60	\$600	\$46,680,000
	1997	76,900	325	\$4.50	\$1463	\$112,469,000
	1998	75,700	335	\$4.60	\$1240	\$116,656,000
	1999	76,900	335	\$4.20	\$1524	\$108,198,000
	2000	75,600	370	\$2.65	\$981	\$74,126,000
	2001	68,800	315	\$9.55	\$3008	\$203,959,000

**San Luis Valley (1993) AND Statewide (2000 & 2001)
VEGETABLE PRODUCTION STATISTICS**

<i>Field Crop</i>	<i>Year</i>	<i>Acres Harvested</i>	<i>Yield (cwt/acre)</i>	<i>Price (\$/cwt)</i>	<i>Value Per Acre</i>	<i>Total Production Value</i>
<i>Spinach</i>	1993	3500	100	\$29.10	\$2910	\$10,185,000
	2000	1400	70	\$32.00	\$2550	\$3,136,000
	2001	1200	70	\$30.00	\$2100	\$2,520,000
<i>Lettuce</i>	1993	2700	290	\$15.80	\$4582	\$12,800,000
	2000	2000	340	\$9.80	\$3332	\$10,880,000
	2001	2000	350	\$12.00	\$4200	\$8,400,000
<i>Carrots</i>	1993	1400	380	\$8.60	\$3268	\$4,575,000
	2000	4100	550	\$9.60	\$5280	\$21,648,000
	2001	3200	660	\$10.00	\$6600	\$21,120,000

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