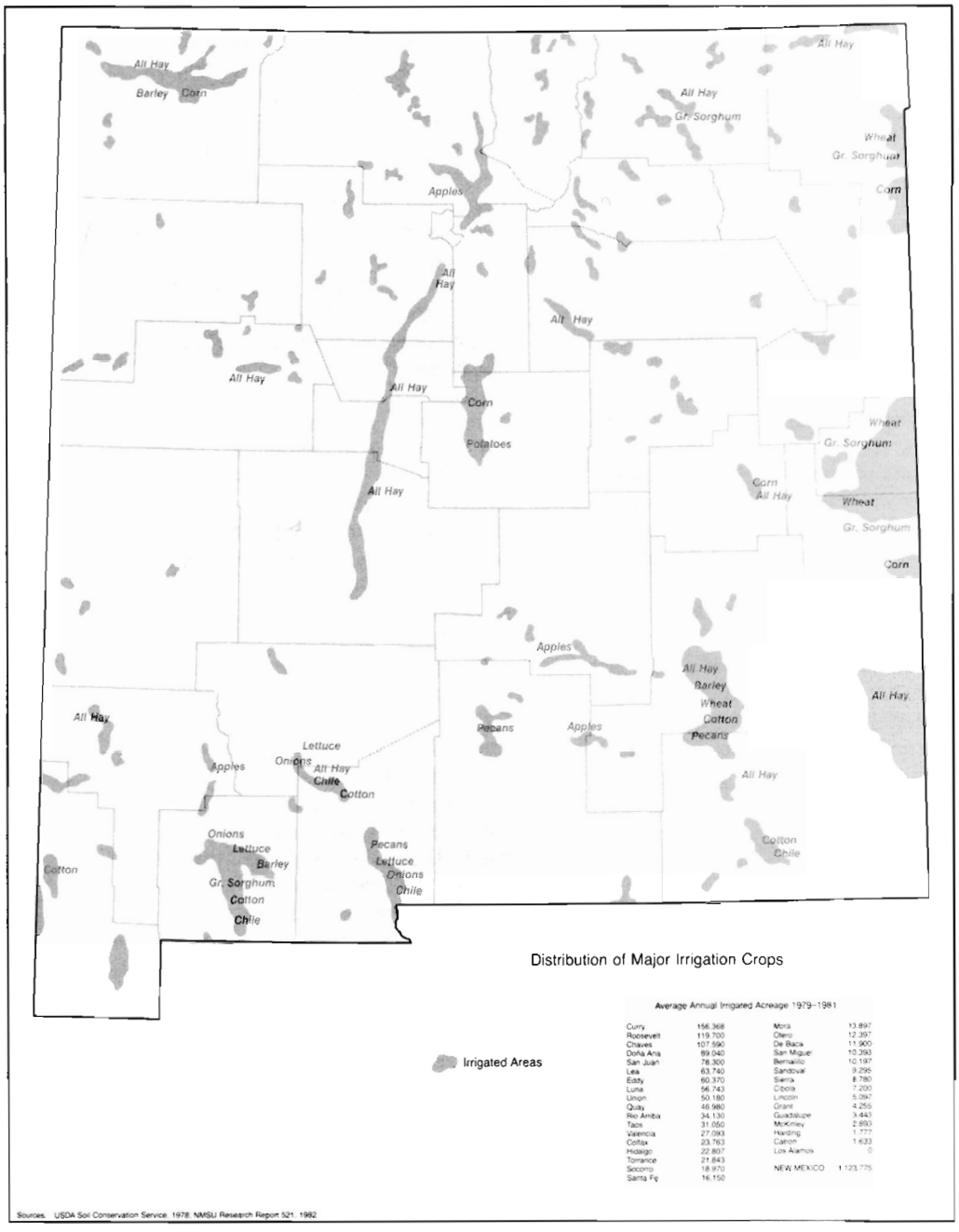
Irrigation Farming



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Irrigation farming has been important to New Mexico's economy since prehistoric times. Irrigated corn was cultivated by the flood-field technique during the early village settlement period, and evidence at Chaco Canyon demonstrates that the Anasazi had advanced techniques for the collection and distribution of runoff. When the Pueblo Indians moved to the perennial water bodies several centuries before the historic era, the technique of diversion and field channeling was fairly well established. Commercial cropping by surface-water irrigation began with the Hispanic period and involved multiple cropping of vineyards, orchards, specialty vegetables, and livestock fodder. The first evidence of extensive farming from groundwater was in the lower Pecos Valley near Roswell and Carlsbad at the end of the nineteenth century. Large areas of orchard were fed by artesian wells supplied by drainage from the western edge of the Pecos Basin.

Commercial irrigation farming expanded rapidly during the twentieth century, as the conservancy and flood control dams created a growing network of canals and drains throughout the floodplains of perennial rivers. Abiquiu, Cochiti, Elephant Butte, and Caballo dams regulate the flow in the canals of the Rio Grande. Navajo Dam is the flow regulator of the San Juan; Conchas Dam opened up huge areas for irrigation along the Canadian River; and the Fort Sumner, McMillan, and Avalon dams have regulated the flow of the Pecos. By the end of World War II, the increased use of the gasoline-fueled pump provided access to large groundwater supplies and enabled irrigation farming to be located on the flat mesas where extensive fields could be established for mechanized large-scale farming.

In recent years, irrigated farming has been developed mostly in eastern New Mexico. There was no irrigation in Curry County in 1940, but by 1982 about 220,000 acres had been developed. Lea County irrigation increased from 1,970 to 119,240 acres, and Roosevelt County from 10,870 to 143,670 acres in the same period. Significant increases also occurred in Chaves, De Baca, Hidalgo, Luna, Otero, Quay, San Juan, Torrance, and Union counties. Most of this development has been where groundwater is the source of supply. During 1976, water from the San Juan–Navajo Reservoir was delivered for the first 9,200 acres of the Navajo Indian Irrigation Project in San Juan County. Since then, water has been delivered to an additional 29,200 acres, with the expansion of the Navajo Indian Irrigation Project taking place on former rangeland.

During the period 1977–82, the irrigated crops that accounted for the largest portion of cropped acreage in the state were alfalfa, with an average of about 267,105 acres (25 percent); wheat, with an average of about 151,790 acres (14 percent); sorghum for grain, with an average 118,600 acres (11 percent); upland cotton, with an average of about 114,745 acres (11 percent); and corn, with an average of about 111,902 acres (10 percent). Crops that increased 5,000 or more acres during this six-year period were wheat, grain sorghum, barley, dry beans, and orchards. These crops accounted for 96,000 acres more in 1982 than in 1977. Crops that decreased more than 5,000 acres were corn, other small grains, upland cotton, other field crops, and alfalfa. These crops accounted for 94,640 acres less in 1982 than in 1977. The seven counties with the greatest increases in the total acres irrigated were San Juan, 40,110 acres; Union, 10,970 acres; Quay, 190,290 acres; Roosevelt, 5,620 acres; Chaves, 5,300 acres; Taos, 2,490 acres; and Socorro, 2,090 acres.

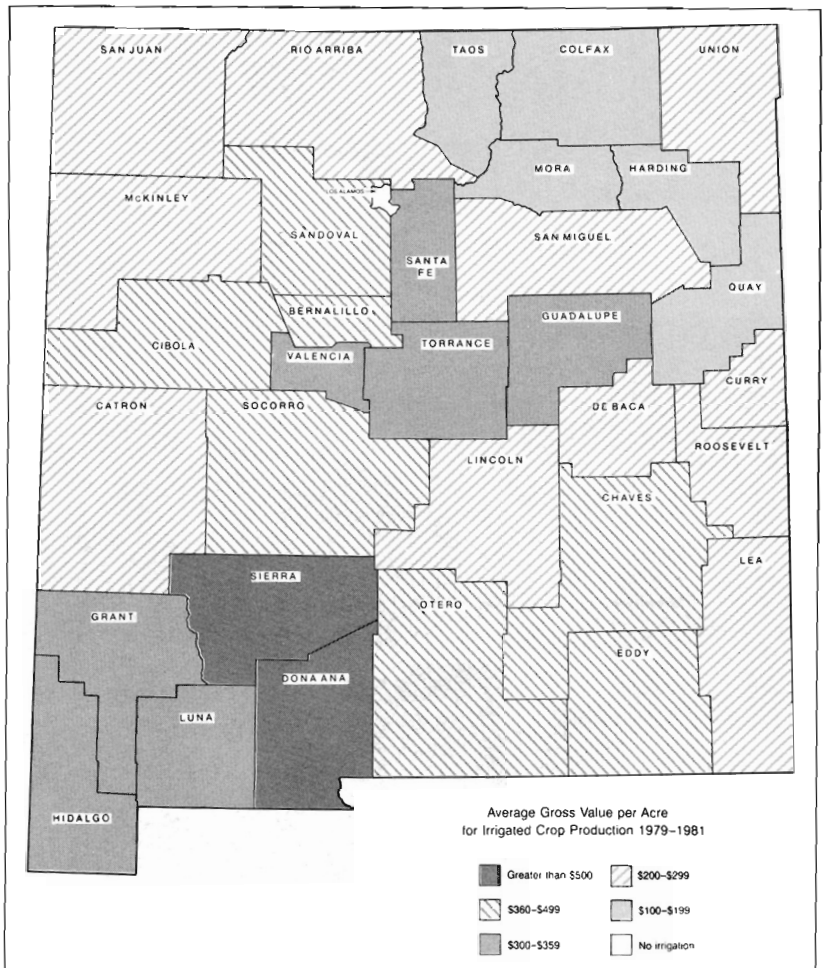
Estimated gross value of irrigated crops is comparable to gross receipts plus the estimated value of that portion of crops not marketed but used on farms

Average Gross Value* per Acre: 1979–1981
Ranked by Dollar Value

Doña Ana	$ 870
Sierra	799
Bernalillo	498
Chaves	410
Eddy	407
Otero	395
Socorro	380
Cibola	378
Sandoval	369
Santa Fe	359
Luna	356
Guadalupe	346
Torrance	340
Grant	335
Valencia	327
Hidalgo	322
De Baca	275
Curry	272
Rio Arriba	271
San Juan	266
Lincoln	265
McKinley	262
Union	259
Roosevelt	245
Catron	235
Lea	227
San Miguel	200
Taos	190
Harding	188
Quay	184
Colfax	135
Mora	129
Los Alamos	0
New Mexico	342

*Gross Value—includes production consumed on farm

Source: New Mexico State Universtiy, College of Agricultural Research Report 514.



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where produced. It does not directly indicate relative profitability among crops. Total gross value of irrigated crops provides an indication of income and employment impacts resulting from irrigated agriculture.

Specialty crops contributed 27 percent to the 1981 estimated gross value for irrigated crops in New Mexico. Specialty crops included apples, chile, lettuce, onions, pecans, potatoes, sugar beets, other orchards, vineyards, and all other vegetables. There has been a recent increase in vineyard irrigation (from 10 acres in 1980 to 610 acres in 1982) with great expansion on large farms in Sierra, Luna, and Valencia counties. These crops were produced on approximately 6 percent of the irrigated acreage in New Mexico. The contribution of specialty crops to the 1981 estimated gross value of all irrigated crops in each county ranged from 0.0 percent in McKinley County to 34.2 percent in Doña Ana County. Specialty crops also provided more than 20 percent of the irrigated gross crop value in Otero and Sierra counties. Five counties had specialty crops that contributed more than 10 percent but less than 20 percent of the gross value for all irrigated crops: Bernalillo, Cibola, Grant, Lincoln, and Sandoval.

Several factors not considered in this report may impact the differences among counties in estimated gross value of irrigated crops per acre. These variables are the time of water availability for irrigation, quantity of water available, soil quality, marketing opportunities, and farm size. Use of surface flow versus groundwater and the soil composition can frequently restrict monoculture of cash crops. The efficiency of small, long-lot farms in contrast to the highly mechanized production of the huge center-pivot irrigation system will also have a bearing on gross value and value per acre. The present condition of mining water from the Ogallala aquifer in the plains east of the Pecos and Canadian rivers may signal the demise of these large-scale irrigation systems in the eastern border counties.

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Average Annual Acreage of Irrigated Crops, 1977–1982 and Gross Value per Acre, 1981

Crop	1977–1982 Average Acreage	1981 Gross Value/Acre
Onions	3,937	$ 5,350
Lettuce	4,965	2,042
Chile	13,923	1,902
Other vegetables	10,455	1,879
Potatoes	4,055	1,375
Vineyards	182	1,275
Pecans	15,424*	1,047
Orchards	27,182	834
Pima cotton	10,533	734
Peanuts	9,538	686
Sugar beets	1,710	609
Dry beans	10,843	432
Alfalfa hay	267,105	384
Corn	111,902	379
Upland cotton	114,745	354
Sorghum/hay pasture	13,570	319
Other field crops	4,498	240
Sorghum grain	118,600	183
Barley	36,013	173
Other small grains	40,540	163
Planted pasture	113,373	157
Wheat	151,790	147
Native pasture	49,470	62

*1981 acreage only

Source: New Mexico State University, College of Agriculture Research Report 514.