

sprinklers, and subirrigation. Of the four, furrows and ditches are used most extensively, particularly in the western United States. However, in the Eastern States, sprinkler irrigation is slightly more important in terms of acres irrigated.

Of the 38.2 million acres irrigated on class 1-5 farms, furrows and ditch irrigation was used on 19.2 million acres, or 50.1 percent (chart 5). Flooding was used on 11.9 million acres (31.1 percent), sprinklers on 7.2 million acres (18.2 percent) and subirrigation on 0.6 million acres (1.6 percent). The sum of the acreage irrigated by each method exceeds the total acres irrigated because in some areas more than one method was used to irrigate the same acreage. However, water was applied to most irrigated acreage by only one method. Of the total acreage irrigated, 27.8 million acres, or 72.9 percent were irrigated by a single method. Of the acreage irrigated by a single method, 14.2 million acres (50.9 percent) were irrigated by furrows and ditches, 8.4 million acres (30.3 percent) by flooding, 4.9 million acres (17.7 percent) by sprinklers, and 0.3 million acres (1.2 percent) by subirrigation.

**Summary Table 4. Average Acre-Feet of Water Applied, by Area and Method of Application**

	Average acre-feet of water applied per acre irrigated		
	United States	17 Western States and Louisiana	30 Eastern States, Alaska and Hawaii
Furrows and ditches.....	2.06	2.13	.78
Flooding.....	2.26	2.36	1.40
Sprinklers.....	1.39	1.64	.59
Subirrigation.....	1.39	2.16	.91

The methods used to apply irrigation water also have a definite effect on the quantity of water applied per acre (summary table 4). Water use was highest on farms utilizing flood irrigation. These farms reported an average of 2.26 acre-feet of water applied per acre. At the U.S. level, sprinkler and subirrigation showed the lowest water use with equal averages of 1.39 acre-feet per acre. However, there were distinct differences in water use in the West versus East.

#### Crop Production on Irrigated and Nonirrigated Land

Since crop production is one of the leading indicators of the effects of irrigation, data are provided for average yield for selected crops harvested from irrigated and nonirrigated land: Table 11 presents data for farms reporting, acres harvested of selected crops, and the average yield per acre for irrigated and nonirrigated land. The selected crops were tabulated as wholly irrigated, nonirrigated, and partly irrigated. The crop was classified "wholly irrigated" if the farm reported all acres harvested of the specified crop as being irrigated. Likewise, a crop was tabulated as "nonirrigated" if the farm reported acreage harvested for the crop but none of the acreage was reported irrigated. The "partly irrigated" category includes the crop acreage from those farms where only part of acres harvested of

the specified crop was reported irrigated. The average yield per acre was computed for the acres harvested of each specified crop for each category. In most cases, particularly in the western part of the United States, the differences in average yields on wholly irrigated and nonirrigated acreage were striking.

To provide an overall view of the effect of irrigation, data are presented in summary table 5 concerning average yield for selected crops with respective crop yield indexes for the 17 Western States and Louisiana and for the 30 Eastern States, Alaska, and Hawaii. In computing the indexes, the U.S. average yield per acre for each specified crop was used as the base figure and set equal to 100. The index of average yields was then computed for the average yield of that portion of the crops that was wholly irrigated and the portion that was not irrigated for each of the two areas.

**Summary Table 5. Index of Average Yield for Specified Crops Harvested From Wholly Irrigated Land and Nonirrigated Land When U.S. Average Yield=100**

	Average yield per acre-United States		Index for 17 Western States and Louisiana		30 Eastern States, Alaska, and Hawaii	
	Average yield	Index	Crop wholly irrigated	Crop non-irrigated	Crop wholly irrigated	Crop non-irrigated
Alfalfa hay.....tons..	2.82	100	139	73	119	102
Corn for grain.....bushels..	85.9	100	128	69	99	102
Corn for silage.....tons, green wt..	12.47	100	140	60	111	105
Sorghum for grain.....bushels..	53.0	100	149	84	104	102
Winter wheat.....bushels..	29.8	100	148	93	115	121
Spring wheat.....bushels..	26.8	100	183	96	108	112
Barley.....bushels..	44.2	100	139	89	112	110
Oats.....bushels..	53.8	100	109	90	141	107
Soybeans for beans.....bushels..	27.2	100	117	82	96	102
Dry field beans.....100-lb. bags..	13.2	100	132	45	124	96
Alfalfa seed.....pounds..	222	100	155	42	64	29
Cotton.....bales..	0.91	100	148	58	137	110
Tobacco.....pounds..	1,881	100	55	39	103	100
Irish potatoes.....cwt..	216.7	100	116	66	106	87
Sugar beets for sugar.....tons..	17.97	100	107	76	93	77
ALL vegetables.....dollars..	388.83	100	146	37	169	52
Fruits, nuts, berries.....dollars..	413.62	100	129	46	89	75

It is quite obvious that irrigation has a much greater effect on average production in the West versus the East. In the West, the mean index for wholly irrigated production is 132 and for nonirrigated production is 67. This indicates that production for the specified crops which are wholly irrigated is generally 32 percent greater than the U.S. average. Nonirrigated crop production, on the other hand, is 33 percent less. The mean index for wholly irrigated production in the East is 111 and, for nonirrigated production is 93 when compared to the U.S. average. Therefore, wholly irrigated crop production for the specified crops is generally 11 percent greater than the U.S. average for all crops and nonirrigated production is only 7 percent less. However, as can be seen, the percentage indexes vary considerably by crop and area.

Another measure of the effect of irrigation is the value of products produced on irrigated farms versus nonirrigated farms. In 1969, the total market value of products sold from all farms amounted to \$45.6 billion. Class 1-5 farms accounted for \$44.5 billion, or 97.6 percent of the total value of all farm products. Table 12 in the body of this chapter provides detailed information for value of products sold from nonirrigated farms and