UNITED STATES DEPARTMENT OF THE INTERIOR
Geological Survey

in cooperation with
THE MARYLAND DEPARTMENT OF GEOLOGY, MINES AND WATER RESOURCES
Baltimore, Maryland

SUPPLEMENTAL IRRIGATION IN MARYLAND IN 1957

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This memorandum was prepared to accommodate requests for information on the extent and amount of supplemental irrigation in Maryland and the sources of the water used for this purpose.

The chief sources of information were the field officers of the U. S. Department of Agriculture, the State of Maryland county agricultural agents, the U. S. Department of Commerce 1954 Census of Agriculture, and the files and published reports of the U. S. Geological Survey and the Maryland Department of Geology, Mines and Water Resources. Although of the proper order of magnitude, the numerical data given here is preliminary and is subject to revision as more accurate information is obtained. The University of Maryland Agricultural Extension Service is now conducting a comprehensive field survey to determine the extent of irrigation in Maryland in 1957.

Maryland is within the humid area of the United States and its precipitation ordinarily is sufficient to support crops. However, short periods of drought are not uncommon, and the serious drought of this summer has turned the attention of farmers, farm groups, and State officials to the benefits offered by supplemental irrigation. As now practiced, irrigation is used in Maryland chiefly to compensate for rainfall deficiencies during the growing season, and the magnitude of its use for this purpose is rapidly increasing. It probably will be used increasingly to improve the yield, quality, and rate of growth of crops during years of adequate precipitation also.

The attached table summarizing the magnitude and source of water used for supplemental irrigation is self-explanatory. The use of wells as a source of irrigation water, although small now, is rapidly increasing, and a number of irrigation wells were being drilled at the time this memorandum was prepared. Investigations during the past 14 years by the U. S. Geological Survey in cooperation with the Maryland Department of Geology, Mines and Water Resources show that large ground-water supplies are obtainable from properly constructed wells in most parts of the agricultural area of eastern Maryland, a part of the Coastal Plain province. Large ground-water supplies are not available in the central and western parts of the State, within the Piedmont and Appalachian provinces, except in local areas having favorable geologic and hydrologic conditions, such as areas underlain by limestone, marble, permeable sandstone, and highly shattered and weathered rocks.

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Table 1 indicates that an average of nearly 30 million gallons of water (90 acre-feet) was used daily during the summer of 1957 for supplemental irrigation in the Coastal Plain province, which is the chief agricultural area of the State. About 67 million gallons was used daily for this purpose in the entire State. If an average of about 60 days of irrigation is assumed, some farms being irrigated for considerably more than this and others for less, a total use on the order of 4 billion gallons for the season is indicated. In all of Maryland a little more than 12,000 acres was irrigated during 1957. This acreage is 17 times as large as that irrigated in 1949. About 5,500 gallons was supplied daily, on the average, for each acre irrigated. Farm ponds, streams, and tidal estuaries were the water source for 94 percent of the irrigation systems. Wells were the source of water for about 6 percent of the systems.

Table 1. Preliminary summary of source and magnitude of water use for supplemental irrigation in Maryland in 1957

Physiographic province	Average daily use in irrigation season		Area irrigated	Average amount of water applied daily per acre		Increase in acreage irrigated (percent)		Source of water (percent)			Method of distribution	
	(million gallons)	(acre-feet)	(acres)	(gallons)	(acre-feet)	1949-57	1954-57	Streams or estuaries	Ponds	Wells	Sprinkler	Ditch
Coastal Plain	29.4	90	6,622	4,400	0.013	1,900	73	39	53	8	95	5
Piedmont	20.6	63	3,466	5,900	.018	5,400	17	64	34	2	90	10
Appalachian	17.2	53	2,145	8,000	.025	600	37	49	50	1	100	0
Total	67.2	206	12,233									
Average				5,490	.016	1,660	47	47	47	6	94	6

Remarks: Principal months of supplemental irrigation are June, July, and August, and to a smaller degree May and September. Coastal Plain counties include Anne Arundel, Calvert, Caroline, eastern half of Cecil, Charles, Dorchester, Kent, Prince Georges, Queen Annes, St. Marys, Somerset, Worcester, Talbot, and Wicomico. Piedmont counties include Baltimore, Carroll, western half of Cecil, Frederick, Harford, Howard, and Montgomery. Appalachian-province counties include Allegany, Garrett, and Washington.