

Water Resources

by Don Timmons

(Editor's Note: Green is the universal color symbolizing fertility, and accordingly, the earth has often been called "The Green Planet." Lancaster County, in turn, has been known as "The Garden Spot of America." Underlying both of these gratifying titles is one basic ingredient — WATER! The Lancaster County Plan-

ning Commission recently released a complete report on water resources in the county (see editorial Lancaster Farming 10/22/66 for summary). Feeling that everyone involved in agriculture should know about this study and should understand its implications for future farming, we will report some of the study's highlights in weekly installments.)

Part I . . .

County Streams Overloaded; Water Levels Too Low, Study Indicates

BACKGROUND

In 1729, when Lancaster County was established, there were no particular water problems here. Recent increases in population, disposable income, leisure time, mobility, and urbanization have all set the stage for serious water problems in the county before this century is through.

By the year 2010, it is estimated that Lancaster County's population will have doubled. By the same time, the water needs per person (including industry) will have approximately tripled. Together, these facts add up to water needs totaling six times today's requirements.

Discounting the rain barrel, the only available sources of water are surface — local streams and ponds; ground — wells and springs. The report shows that the former is an unreliable supply, and that the

latter will be a satisfactory source only until about 1985.

SURFACE WATER

Seven major streams in Lancaster County were studied for water quality, low-flow duration, and flood frequency. These streams were: Conewago, Conoy, Chickies, Conestoga, Pequea, Conowingo, and Octoraro.

The base flow period for each stream was defined as "when the flow of the stream is from ground water discharge and there is no surface runoff." The study points out that the low-flow figures were based on limited data and are to be used only in very preliminary investigations.

Conewago Creek — originates in Furnace Hills, Lebanon County; travels in a southwesterly direction for 20.8 miles to join the Susquehanna River at Falmouth. During its last 11.5 miles, the Conewago represents the boundary between Lancaster and Dauphin Counties.

The Conewago is used as a supplementary source of water supply by the Elizabethtown Water Company, although actual withdrawals have been slight and infrequent. Some water is also drawn from the stream for irrigation.

The creek receives the effluent from the Mount Gretna Borough sewage treatment plant which varies from as high as 400,000 gallons per day in the summer season to about 50,000 gallons per day during the remainder of the year.

Conoy Creek — has a watershed area of 19.2 square miles. It originates in Mount Joy Township, flows through Elizabethtown to the Susquehanna River, a distance of 9.6 miles.

Conoy Creek is utilized as a source of water by the Klein Chocolate Co. of Elizabethtown. During 1964, the Klein Co. drew an average of 210,000 gallons per working day from the creek for its cooling systems. Most of this, plus some well water, was returned to the stream in amounts estimated at 270,000 gallons per day.

The Elizabethtown Water Co. also draws water from the Conoy. Company records show amounts average 130,000 gallons daily. An indeterminate amount of water is also withdrawn from this stream for irrigation.

Several companies, plus the Elizabethtown sewage treatment plant, discharge waste water and effluent into the Conoy in amounts totaling 412,000 gallons per day.

Chickies Creek — has its headwaters in the Furnace Hills of Lebanon County. The stream flows south and east to Manheim, then to the Susquehanna River. The main stream channel has a length of 29.7 miles, with a watershed covering 127 square miles.

Three boroughs utilize this surface water supply: Mount

Joy, 400,000 g.p.d.; Manheim, 200,000 g.p.d.; and Mountville, 420,000 g.p.d.; and Mountville, (though not in the watershed, draws about 100,000 g.p.d. from Grubb Lake which is supplied by Chickies).

With the exception of Mountville, the boroughs return approximately the amounts drawn after usage and treatment. Also, the Raybestos plant at Manheim draws about 650,000 g.p.d. from ground sources. After usage and settling, that water flows into Chickies, supplementing the natural stream flow. Withdrawals of water for irrigation are reported as substantial, but no figures given.

Conestoga Creek — is the largest and most used of Lancaster County's principal streams. The creek drains 477 square miles, 83 percent of which is in the county. The Conestoga Creek basin constitutes about 42 percent of the total land area in the county, and two-thirds of the entire population of the county reside therein.

The total length of the Conestoga Creek channel is 60.8 miles.

The Conestoga has five major tributaries: Little Conestoga, Mill Creek, Lititz Run, Cocalico Creek and Muddy Creek.

With its tributaries, the Conestoga is heavily utilized as a water supply source for boroughs, irrigation, and the City of Lancaster. The effluent of numerous sewage treatment plants is discharged into the creek daily. Detailed usage is too complex to list here.

Pequea Creek — drains an area of 154 square miles. It originates in the Welsh Mountains of Lancaster County and flows 44 miles to the Susquehanna River.

Pequea Creek has two major tributaries, Big and Little Beaver Creeks.

utilizes Pequea Creek or its tributaries for water supply. Also, field inspection and available records did not reveal any industrial users. In 1964, sewage effluent was discharged into the creek, averaging 12,000 g.p.d. from the Pequea Valley Junior-Senior High School, and about 80,000 g.p.d. from the Quarryville sewage plant. Irrigation withdrawals from the basin have been estimated at 1.25 million gallons per day in 1965.

Conowingo Creek — drains 39.2 square miles. It originates in Providence Township, and all but the last 3.5 miles of the stream's total 19.1 miles are in Lancaster County.

Except for some irrigation, there are no recorded usages of the surface waters of Conowingo Creek and tributaries.

Octoraro Creek — is the second largest stream in Lancaster County with a drainage area of 212 square miles. The stream is formed by the East and West Branches of Octoraro Creek and has a total length of 21.8 miles, with 12.9 miles in Pennsylvania.

The Chester Municipal Authority has a 2.5 billion gallon reservoir at the junction of the East and West Branches of the Octoraro. The reservoir and the flow of the two branches supply water to the City of Chester. In 1964, this use averaged 24 million gallons per day. The Octoraro Water Co. pumps 920,000 g.p.d. to supply water to Quarryville and some Chester County communities discharged into the stream effluent from sewage treatment plants, amounting to 130,000 g.p.d. at Christiana, and to 6000 g.p.d. from the Bart-Colerain Elementary School.

SUMMARY — The study (Continued on Page 8)

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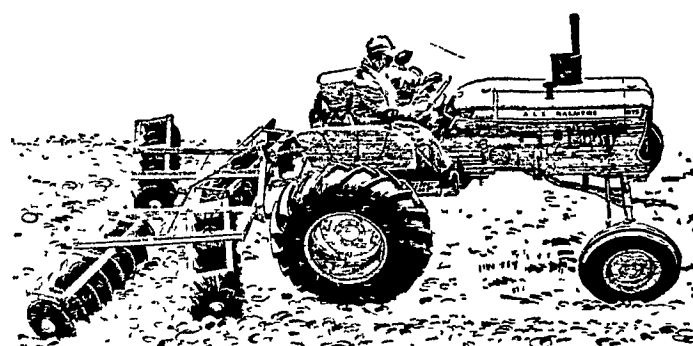
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