

Sent to J. D. Dodson
7/30/71

~~State Report~~

PROGRESS REPORT FOR FISCAL YEAR 1970-71

Biological and Agricultural Engineering Extension

As a result of the testing program that was conducted in FY 1969-1970 on spinner type fertilizer spreaders, a major fertilizer manufacturer who operates several spreaders through its stores and dealers requested and was given a program on fertilizer spreaders for its dealers and sales personnel in North Carolina and Virginia. The tests showed the importance of correct equipment adjustment to assure good lime and fertilizer distribution patterns which in turn would lead to more uniform crop stands.

The last of 32 land forming demonstrations in eastern North Carolina were successfully completed. Approximately 3000 farmers and agribusiness men were contacted directly or indirectly concerning this water management practice during the last three years. Concurrent research has provided computer programs for land forming design on rectangular and irregular shaped fields and has made comparisons of the various types of design to determine those most suitable for the particular purpose and field.

On-farm testing of subsurface irrigation was continued in Washington and Beaufort Counties. This water management practice looks very promising for use in areas with an impermeable layer or a constant water table within about 8 feet of the surface. It appears that about a 75-foot spacing and a 4-foot depth will be suitable for several soil types. Costs can be divided between irrigation and drainage.

Funds were received through the annual allotment program of the Water Resources Research Institute for a study entitled "Agricultural Water Needs in North Carolina, Phase I". This grant follows the completion of the study entitled "Projected Irrigation Water Requirements for Northeast North Carolina above Cape Lookout for the Year 2020".

(By H. G. King)

July 30, 1971

MEMORANDUM TO: Mr. J. D. Dodson

FROM: George J. Kris

SUBJECT: Progress Report for Fiscal Year 1970-71

Enclosed please find a copy of Progress Report for Fiscal Year 1970-71 for Biological and Agricultural Engineering Extension, and also a success story, "Environmentally Controlled Poultry Houses" by L. Bynum Driggers.

If I can be of any further assistance, please contact me.

GJK:is
Enc.

CC: Dr. T. Carlton Blalock

(Success Story)

ENVIRONMENTALLY CONTROLLED POULTRY HOUSES

L. Bynum Driggers

Biological and Agricultural Engineering Extension Specialist

Control of the environment is essential if producers expect maximum bird performance, lower labor costs, and a reduction in other production costs in a high density laying house.

Studies show that birds producing in houses where near optimum temperatures are maintained and a continuous supply of air is available for providing oxygen, removing moisture and odors and other contaminants, steady egg production results. A definite decline in egg production with increased feed consumption was experienced where uniform near optimum temperatures could not be maintained in winter.

Labor costs in environmentally controlled houses per dozen eggs are one-third to one-half the costs in narrow, open type houses. Also, livability, eggs per hen housed and feed per dozen eggs were significantly better in the totally enclosed houses with controlled ventilation.

Total cost per dozen eggs produced was 2.5 cents to 4 cents less. In a 30,000 bird house with normal mortality, a reduction of 1 cent in the cost of producing a dozen eggs means approximately \$6,000 in additional income. This is not probable but possible because these studies were made on commercial egg farms. Savings of this magnitude more than offset the increased cost of environmental controlled housing.

In addition, there are other benefits, namely in labor relations and essentially no flies.