

NORTH CAROLINA AGRICULTURAL EXTENSION SERVICE

PLAN OF WORK

AGRICULTURAL PRODUCTION, MANAGEMENT, AND NATURAL RESOURCES USE

Title of Project

BIOLOGICAL AND AGRICULTURAL ENGINEERING

Section

1967 - 1968

Fiscal Year

Name and Title of worker	Percentage of Time Devoted to Entire Project by Each worker
<u>H. M. Ellis, In Charge</u> Project Leader	<u>100 %</u>
<u>L. Bynum Driggers, Specialist</u>	<u>100 %</u>
<u>John W. Glover, Specialist</u>	<u>100 %</u>
<u>Ronald E. Sneed, Specialist</u>	<u>100 %</u>
<u>W. C. Warrick, Specialist</u>	<u>100 %</u>
<u>Rupert W. Watkins, Specialist</u>	<u>100 %</u>
<u>_____</u>	<u>_____ %</u>
<u>_____</u>	<u>_____ %</u>
<u>_____</u>	<u>_____ %</u>
<u>F. J. Hassler, Head</u> Biological and Agricultural Engineering	<u>_____ %</u>
<u>_____</u>	<u>_____ %</u>
<u>_____</u>	<u>_____ %</u>
<u>_____</u>	<u>_____ %</u>
<u>_____</u>	<u>_____ %</u>
<u>_____</u>	<u>_____ %</u>

Signed \_\_\_\_\_  
State Director of Extension

Date Recommended \_\_\_\_\_

Signed \_\_\_\_\_  
Administrator, Federal Extension  
Service, U.S. Department of  
Agriculture

Date Approved \_\_\_\_\_

## PLAN OF WORK - 1967-1968

Agricultural engineering as a profession is new when compared to other disciplines in agriculture. In the past the extension agricultural engineer has found it necessary to spend most of his time in teaching the specialists of other departments and field agents elementary engineering fundamentals. This was because of their almost total lack of academic background in the field of engineering. Due to personnel turn-over and promotions, the agricultural engineer was confined to teaching elementary fundamentals with seldom an opportunity to provide any individual in-depth training.

Our program is being re-directed to meet the stepped-up demand for engineering knowledge brought about by the rapid adoption of mechanized farming. The fact that the need for knowledge is now generally recognized does not change the situation with respect to the level of knowledge of other specialists and the field agents. It is hoped that the following explanation and examples will clarify our efforts to re-direct our program and bring out the fact that such changes cannot be made suddenly.

Within the past fifteen years the principal emphasis in agricultural engineering research in the area of animal production has changed from the mechanical and civil engineering problems of livestock shelters to automatic control of environment and mechanization of materials handling processes. In short, the area where most rapid progress is being made is in automation of livestock production. The extension agricultural engineer specializing in the area of livestock production today has many more tools with which to work than he formerly had. There are more complicated machines and devices, but even more efficient ones must be provided through research. Each technical innovation produces a change in the internal economics of the production unit, and social changes are taking place as better informed and more efficient producers

take over. In redirecting our program, the objective is to more effectively do the extension job; and as an example we will briefly describe the area formerly referred to as farm buildings.

This phase of our program has been very outstanding in meeting a need; but in recent years, because of demands, too much of the specialist's time has been devoted to service type calls. This use of his time has prohibited him from doing the most effective teaching job. The need is for a livestock shelter program that approaches automatic control of environment and mechanization of materials handling processes. We are now in the process of setting up a team consisting of those engaged in research, those in the area of development and teaching, and extension specialists of all allied departments to give thought to needs, development, and effective programming. This information will be used by the extension specialist in the establishment of applied research-type teaching demonstrations, these demonstrations to be conducted at points of need by area specialists.

The extension irrigation program is being re-directed so that most of one specialist's time is being spent in result field demonstrations on the response of certain crops to irrigation. There are several reasons for this change in direction. Information was generally not available on the response of most field crops to irrigation. Our farmers are apathetic and reluctant to irrigate those crops for which irrigation data are not available. It was felt that this information was urgently needed if the irrigation program in North Carolina is to move forward and if farmers are to gain the maximum benefits from the use of their irrigation equipment.

A joint project has been established cooperatively with the departments of soil science and crop science and with irrigation sales interests within the state. A field demonstration has been set up to study the response of corn, cotton, and peanuts to irrigation. This demonstration has served a double

purpose. We are obtaining needed information, and it affords us the opportunity of having a teaching type demonstration that is being visited by interested parties. At present a second irrigation project is being planned for the coastal plains section of North Carolina. This will involve the study of the response of corn and possibly other crops to surface irrigation rather than sprinkler irrigation.

The team approach is proving especially effective in the area of mechanized tobacco production. The extension specialist is devoting more time than has been our custom to result-type demonstrations. Educational meetings are being conducted by the teaching and research faculties, along with the extension specialist. At many of these meetings the tobacco specialists also serve as members of the team.

