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AGRICULTURAL EXTENSION SERVICE

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MEMORANDUM TO: J. D. Dodson

FROM: Guy L. Jones, In Charge
Agronomy Extension

SUBJECT: Progress Report for Fiscal Year 1971-72

Attached is our Annual Narrative Progress Report for Semis. This represents the field crop commodities and includes the subject matter from all crop production departments. We have attempted to put this total program together into a report on the fields crops area.

In addition, we have provided several success stories that you may wish to use or provide to Ag. Information.

GLJ/pf
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PROGRESS REPORT FOR FISCAL YEAR 1971-72 FOR FIELD CROPS

The Spring of 1972 was extremely wet and cold. This condition affected the date and condition of planting of many crops and in some instances the delay in planting was such that stands were affected and, consequently, yields of many crops will be affected. Weed control became a major problem due to the excess water. Later in the season, there were periods of moisture deficiency in certain areas of the state. Generally, however, soil moisture was adequate for excellent yield.

Efforts were made to increase participation in the Farm Business Records by commercial producers of field crops. Some tobacco growers are among the participants in the N. C. Farm Business Records Program. An analysis of 1971 records on 24 farms showed that hired labor was the largest single cash expense in tobacco production. Also, due to the extent of leased quota, rental costs are important for many growers.

Outlook information was prepared on all major crops. In-service training programs were held for a number of major commodities and subject matter areas to up-date agents in the subject of Agronomy.

CORN: The forecast for 1972 corn is: 1,340,000 acres for grain and 180,000 acres for silage.

After a cold planting season in many areas, the corn crop at present looks very good statewide even though many weird situations prevailed in the fields during the early part of the season due to the cold weather. Stunt virus has not developed in the corn variety stunt virus demonstrations in Wilson County. This is in contrast with this field which was severely affected six years ago, not only with stunt virus, but with several other problems and a possible yield of 25 bushels or less per acre. Such is not the case with the Piedmont and the lower Mountain areas where corn stunt along with Maize Dwarf Mosaic is still appearing on the susceptible varieties.

A majority of the acreage is planted to about three hybrids. This high percent of the acreage in similar germ plasm opens the possibility of more disease problems developing. Some rust developed in 1972.

COTTON: North Carolina growers harvested 138,305 bales of cotton from 175,000 acres in 1971. Extreme weather conditions in late season triggered by Hurricane Ginger curtailed production, ranging from 10% in some localities up to 40% in others. Many producers failed to harvest their crop due to excessive wet conditions.

Lint, however, brought the highest prices since the World War II period. Most cotton, including that picked in late winter brought 30-38 cents per pound in addition to the support payment of 15 cents. Gross farmer income from lint and seed amounted to over $30,000,000. Weekly market news reports help the farmer in his marketing program.

Growers continue to study new practices that will save costs and increase yields. Cooperative effort in insect control was at its highest level ever in the state resulting in over 60% of the total acreage in a cooperative or semi-cooperative program. Prior bedding of cotton land and directed herbicide applications proved to be profitable and efficient practices and will be expanded considerably in future seasons.

FORAGE CROPS: Emphasis continues with on-farm tests.

A Beaufort County forage-beef on-farm test involving Agronomy, Ag. Economics, Animal Science, and the county staff has completed five years of business records. The profits have been more than doubled the last three years compared with the base period. This test has shown that forages and beef can be a complimentary enterprise on the relatively large row-crops farms in the area. Beef numbers are increasing in the eastern area.

Another on-farm test with a part-time farmer in the Piedmont is showing that a farm in that area can support a cow and a calf on just over an acre and return over 10% on the investment. Demand for these type tests exceed our ability to service them.

Working jointly with weed control and entomology specialists and representatives from the chemical companies, new chemicals for weed control in pastures and weed and weevil control in alfalfa have been successfully tested and approved for use. Farmers using these chemicals and other suggested management practices are obtaining alfalfa yields of up to six tons of dry matter per acre. Yields without these chemicals are substantially reduced resulting in many cases in failure. Alfalfa acreage has increased by 20% during the past year over 1971.

Ninety-one county agents and 256 farm leaders viewed these on-farm tests during six field meetings in the spring of 1972. These field meetings were planned through the Commodity Coordinating Committee.

GRAIN SORGHUM: The annual acreage in this period dropped 30% below the previous year because of the increased planting of corn due to an ample supply of normal cytoplasm corn seed. Approximately 110,000 acres is forecast to be harvested in North Carolina for this period.

Much discussion has been held during the year on the off-type sorghums that appear in the seed brought in from the southwestern part of the United States. There is at present no method except rogueing in the farmer's field to keep these off-type plants from appearing as sorghum seed is made up by the male sterile cytoplasm method.

PEANUTS: In peanuts, considerable progress has been made in changing from dust materials to wettable powders in the control of Cercospora leafspot. Growers were made aware of the benefits of the wettable powders over a period of years when they were in numerous tests and demonstration plots throughout the area. The advantages of an entirely new concept, the use of a growth regulator, has been demonstrated with growers for a number of years and in 1972 the first full year of EPA clearance for a peanut growth regulator has seen many growers using it on their entire crop. The educational efforts on reducing harvest losses has also been effective as most equipment manufacturers have discontinued the manufacture of digger-windrowers and converted to the manufacture of digger-windrower-inverters.

Intensive on-the-farm test relating to quality of peanut seed were conducted in four counties. Each test was hand harvested and germination tests were performed on the seeds produced. The seed specialist conducted over 700 germination tests in determining the quality of the seeds produced. The results of these tests are currently being analyzed and will be reported soon.

SOYBEANS: Educational efforts were directed to (1) inform producers of the good market potential for the 1972 crops, and (2) encourage producers to use the latest production practices to maximize yields and profits.

Rains during and following Hurriance Giner (late September) damaged the 1971 soybean crop considerably. In order to salvage this damaged crop, a committee consisting of representatives from NCSU, NCDA, ASCS, and the N. C. Soybean Producers Association was organized to obtain protein and oil data on the damaged crop and inform producers and processors of the results. As a result of this effort, discounts for damaged soybeans were greatly reduced resulting in an additional estimated $5 to $6 million to the producers.

Field demonstrations and on-farm tests were conducted to show growers, agents, and agri-business the latest varieties, good weed control, and fertility programs, importance of plant spacing, influence of seed treatment, effect of chemicals for nematode control, the no-tillage method of planting soybeans after small grain, and new methods of insect control.

Emphasis was given to the soybean seed situation, which called attention to the limited supply and low germination of seed produced throughout the Southeast in 1971. Even though the seed supply was limited, a record acreage (1,239,000) of soybeans was planted in North Carolina in 1972 and desirable stands were obtained.

SMALL GRAIN: The 1971-72 yields of wheat, barley, and oats were down 28%, 32%, and 48% respectively from 1970-71. The decline in production was attributed to a decrease in acres harvested plus a decrease in yield per acre. A mild winter with a very sudden change in temperature in January hurt all small grain in the state and practically destroyed the winter oat crop. Small Grain diseases were the worse in several years this spring. Hurriance Agnes hit the small grain crop at a critical stage causing much of it to lodge severely.

The production of rye was down less than 2% this year. It is the thinking of many that the production per acre of small grain will increase in 1973 to previous levels. The Government program could have some effect on the number of acres planted.

TOBACCO (BURLEY): Progress has been made to reclaim unused burley tobacco allotments and more growers are taking advantage of the lease and transfer to increase their poundage through the new control system. This additional income incentive has motivated the grower to adopt the recommended curing practices and housing of tobacco. The use of supplemental heat is practical with the added poundage.

Spacing and other cultural practices are still being investigated to reduce labor costs. In the second year of poundage control the educational program will be geared to assisting with practices peculiar to poundage and lease and transfer of allotments.

TOBACCO (FLUE-CURED): The Tobacco Extension program was directed primarily toward increasing profit to growers through reducing costs of production. Areas of concentration centered around efficiency of labor, increased mechanization, particularly during harvest, reduced risk of production hazzards through the use of better disease and insect control practices, the use of less expensive fertilization programs and increased use of more efficient sucker control programs.

Teaching tools used included mass media such as grower meetings, printed publications, TV, and radio, plus personal contacts; but, heavy emphasis was placed on the on-farm testing program. On-farm tests have proven to be an effective means of keeping agents, growers, and agri-business groups appraised of current and more profitable production practices.

Systems control was accepted and followed by a large number of growers in 1972. Overall losses to the 17 diseases that attack flue-cured tobacco reached an all time low. This low incidence was believed to be due to more effective use of disease-control methods and weather conditions.

Efforts toward mechanization of tobacco harvest are designed to reduce labor costs. Extension workers are carefully observing the performance of mechanical harvesters already on farms to develop guidelines to help farmers decide on the feasibility of such innovations.

Emphasis is also being given to the education of the Extension Agents and growers regarding the use of mobile nutrients such as nitrogen and potassium on tobacco in the Sandhills as well as the other major crops in the general cropping area.

NON-AGRICULTURAL LAND USE: Interest is continuing to increase in our Extension program for assistance in the subject of land use. County Extension Agents, community development specialists, along with selected leaders in the communities, have received direct assistance on interpretation of soils that is useful in the development of land use plans emphasizing the soil resources of the area. Hopefully, this will lead to sounder legislation regarding land use priorities and inventories of soil resources, particularly in the densely populated areas. Much educational effort has been put forth to assist county commissioners and county planning boards to achieve a more complete understanding of the importance of accelerating cooperative soil surveys to be used as a basic inventory of the soils resources. In addition, counseling and educational work has been provided for public health department officials in assessment of soils resources for disposal of human and animal waste. Guidelines are being developed as relate to animal waste disposal and industry is being assisted with many of their waste disposal problems as it relates to land use.

Other assistance in educational work has been directed to developers of housing and mobile trailer parks, builders, and persons directly associated with the development of land for non-agricultural use as well as continued assistance to our farm clientele in sound land use programs.

BLACKLAND SOILS: Crop production on high organic matter soils requires a broad understanding of soil resources and the many requirements of crops growing in a wet, humid environment. Training in soil fertility and management requirements for crops produced on these soils was stressed. In continued efforts to learn the fertility requirements of high organic soils, the following areas of investigation were particularly revealing. In comparing certain chelated, complexed, and sulfate copper sources, it was found that the effectiveness of these sources in promoting wheat and soybean yields was the same, pound for pound of actual copper when applied to acid organic soils. Cooperative efforts with other research personnel in the Soil Science Department and the Soil Testing Division of the NCDA have resulted in the development of a soil test for copper which has successfully passed the initial stages of field correlation. Upon request by farmers, this new copper test is now being used by the Soil Testing Division.

Soil organic matter strongly influences results obtained from preemergence herbicides. Studies conducted with Extension weed specialists have been revealing in determining the rates of adapted herbicides that are required for effective weed control on corn for soils differing in levels of organic matter as determined by soil test.

The proper chemicals and technology, needed to control insect pests have been severely lacking on the high organic matter soils. A step in the right direction has been made, however, with the recent establishment of a position in entomology to study these and other insect problems in the lower coastal plain.

Herbicide use potential has been increased through efforts in the Blacklands area aimed at establishing soil organic matter - herbicide performance ratios. Herbicide performance in this area has been shown to be greatly affected by the shape of the row profile. Wide press wheels on planters were used to increase performance.

SUCCESS STORIES FOR SEMIS

Nitrogen Adjustment Popular Among Tobacco Growers

S. N. Hawks, W. K. Collins, B. U. Kittrell

Flue-cured tobacco is normally grown on sandy loam and loamy sand soils which are subject to nitrogen loss through leaching during excessively wet periods. Since the yield and quality of tobacco are highly sensitive to the quantity of available nitrogen, leaching can be very critical to the successful production of this crop.

Through research, on-farm tests, and observations, a guide has been developed for adjusting fertilizer nitrogen on flue-cured tobacco which has been lost by leaching. The use of this guide, which suggests a percentage of the nitrogen to be replaced at different stages of growth for different amounts of water percolation, has been promoted by the Extension Service for several years through on-farm tests, personal contacts, and mass media.

Almost every year there are at least some areas of the state that have enough nitrogen leaching to make nitrogen adjustment advisable; however, during the spring and early summer of 1972 the situation was much more prevalent throughout the state. Most all farms need at least a 10% nitrogen adjustment and some needed 100% of the previously applied nitrogen replaced. It is estimated the average grower increased the acre value of his tobacco crop by $250 by following the Extension plan in adjusting nitrogen for leaching.

Peanut Success Story

Astor Perry

The proper use of the peanut windrow inverter was the feature attraction at the 1970 Annual Peanut Field Day. Over 700 people attended and observed the demonstrations. During the next two weeks, similar demonstrations were conducted on a county basis by the manufacturers, equipment dealers, and County Agents in six counties. In 1971, the same type of demonstration was conducted prior to the harvesting season in 5 additional counties. The reason for so many demonstrations was that the newly invented windrow inverter had clearly shown its superiority over the conventional method of digging and windrowing in the following ways:

1. More uniform curing, consequently, more uniform moisture content for the combining and airing operations.
2. Faster curing in the windrow - peanuts could be combined 1-3 days earlier.
3. Less pod shedding if bad weather should occur since the pods would not likely be covered with soil during rainy periods.

The payoff of the demonstration occurred after Hurricane Ginger dumped 3-7 inches of water over the peanut producing area of the state. Several thousand acres of peanuts had been dug and were on top of the ground when the hurricane hit. It was more than a week before any of these could be combined. Those that had been inverted showed practically no weather loss while the conventionally dug ones showed pod losses of 10-30%. The period of favorable combining weather was short -- 3 days at the most. The next 3 weeks, our normal harvesting period was warm, humid, with frequent rains and showers on a daily basis. Had it not been for the inverters and the growers knowledge of what they would do under adverse weather conditions, losses would have been much worse than they were. It has been estimated that the inverters permitted growers to save 3-5 million dollars above what they could have saved with conventional harvesting equipment. This would have been even higher but there just were not enough inverters to go around.

Success Story

Gene Sullivan

An intensive educational effort by agronomy specialists, local extension workers, NCDA seed laboratory personnel, and agri-business helped avert a crisis in soybean and cotton plantings this year.

The problem was low quality seed caused by unfavorable weather during the 1971 production and harvesting season. Many potential seed lots had to be discarded because of poor quality. This put a severe strain on seedsmen to locate and supply sufficient quantitites of good quality seed for planting the 1972 crops.

Extension workers were particularly effective in alerting farmers about the seed situation. Farmers saving their own seed were encouraged to have their seed tested. Instructions were given for submitting samples to the seed laboratory for germination testing. Farmers who routinely purchase new seed supplies were encouraged to place orders early so that seedsmen could better estimate the supplies needed. Seedsmen were encouraged to locate out-of-state seed supply sources.

The effectiveness of the educational efforts were apparent during the planting season. Extension workers received only a few isolated reports of plant stand failures. Thus, North Carolina farmers responded to extension's efforts and began the 1972 production season with adequate plant stands for a good harvest.

New Tobacco Plant Bed Fertilizer Analysis

S. N. Hawks

For many years the traditional tobacco plant bed fertilizer analysis has been 4-9-3. Research work which was followed by a series of on-farm tests showed that a new analysis, 12-6-6, would produce equally good plants at about one-half the cost to the grower. In 1971, only a few growers used this higher analysis fertilizer, but in 1972 after a strong Extension educational program, a much larger number of growers used this low cost fertilizer. In 1973, fertilizer dealers will no longer be allowed to sell 4-9-3 tobacco plant bed fertilizer in North Carolina. The change from a 4-9-3 to a 12-6-6 fertilizer will result in an annual savings of about $870,000.

Tobacco Disease Losses Reach All-Time Low In '72

F. A. Todd

Tobacco diseases have been a continuous threat since the early days of production. At the present time there are some seventeen different diseases that might attack this crop and five or six of this number could cause major damage unless control measures of one type or another are used. Some diseases kill plants outright while others stunt growth, but regardless of kind, the overall effect is reduced performance.

Losses will most likely reach an all-time low in 1972 of $18 to $20 million. Estimated losses have varied considerably between growing seasons during the past 30-year period. In the 1940's, diseases reduced crop values about $70 million; $50 to $60 million in the 50's; and $25 to $30 million in the 60's.

This reduction in loss is believed to be due in part to the development, evaluation and grower acceptance of improved disease control methods. In 1960 an expanded research and demonstration program called Extension-Research On Wheels was initiated. Through this program all available disease control methods were evaluated in fields where one or more diseases caused damage to the previous crop. An integrated approach to control was started in 1965 which involved the evaluation of various combinations of disease control methods. Results from these tests provided information needed to develop a system or prescription plan of control.

The new system plan was offered to flue-cured and burley growers during the winter of 1970. A large number accepted this plan and followed the seven control practices for their chosen system in producing the 1972 crop. Many others use parts of the system plan but perhaps will move to the complete program in 1973.

The tremendous reduction in disease loss in 1972 was believed to be due to several factors including weather conditions, a high percent carrying out Operation R-6-P (stalk and root destruction) following harvest of the 1971 crop, a switch from a very sensitive and sensitive varieties to brown spot to those that were tolerant, and a "double" increase in use of multi-purpose chemical soil treatments.