

Soybean All-Practice Demonstration Outline-1963

Objective

The purpose is to economically increase soybean yields and quality, particularly on farms with a history of low yields. A few demonstrations can be placed with average or above average producers to determine production potentials when all approved practices are used.

The Demonstration

A demonstration should be a unit that can be harvested separately. Yield comparisons may be related to previous history or production in the area. Adjacent check plots will not adequately evaluate the success of the demonstration where a combination of practices is involved.

LOCAL ORGANIZATION - These demonstrations should be a team effort of agricultural workers and industry with the county agent named as coordinator. The degree of formal organization is left to the option of the local group. It is suggested that the supervision of each phase of the demonstration outline be assumed by a member of the group having the most experience or a specific interest in that phase. For example, a fertilizer representative or a machinery dealer might be responsible for properly placing the fertilizer to prevent injury to the seed or young seedlings.

SELECTING THE FARM COOPERATOR - The farmer selected should be interested in improving the level of production of his soybean crop with a past history of production at about the average level of the community or below. His other practices such as cultivation, fertilization, and use of equipment should be typical of the community.

TRAINING SCHOOL - It is desirable to hold training schools to acquaint farmers, agricultural workers and cooperating industry with the purpose of the all-practice demonstration and acquaint each one with his responsibility. Each person should express his willingness to accept the assigned responsibility.

SPECIAL PRACTICES - Practices such as irrigation may be incorporated into the all-practice demonstration, providing they are under the supervision of trained personnel and it is the feeling of the local group that this would contribute to the overall program.

MATERIAL USED - The State Committee hopes that the farm cooperators will furnish all of the material for the demonstrations. Where this will create a hardship on an otherwise desirable cooperator, the soybean specialist should be contacted relative to the availability of the particular material.

Where suitable application equipment is imperative, each demonstrator should either have adequate equipment available, or plan to purchase such equipment.

CHECK PLOTS - It is felt that all interested parties should agree beforehand on the procedure to be followed without requiring the farmer to continue his conventional practices on his soybeans outside the demonstration. This procedure will encourage the farmer to adopt at least part of these practices in his conventional farming system the year of the demonstration.

FIELD SELECTION - Select a soil type and condition commonly used for the production of soybeans in the community. The field should have been in a suitable crop other than soybeans the previous year. Adequate surface and internal drainage should be provided or established. Adequate erosion control measures should be adopted.

FERTILIZATION AND SOIL SUPPLEMENTS - A soil test is required and the soil sample should be taken not later than January or February. Mark the sample "All-Practice Demonstration" and send to the Soil Testing Laboratory of the N. C. Department of Agriculture. Dr. Howard Small and the county agent will make the fertilizer recommendations on the basis of the soil test information and other known conditions.

Apply any recommended lime and mix thoroughly with the soil at least 3 to 6 months before planting the crop. If this cannot be done, select another field or put the demonstration off until next year. (A pH around 6.0, but below 6.2 is suggested.)

Apply the fertilizer 2 1/2 to 3 inches to the side of the seed and 1 1/2 inches below the level of the seed. Where adequate sideplacing equipment is not available, precautions must be taken to prevent injury to the seed and seedlings.

Sidedress if recommended on the basis of a soil test.

SOIL PREPARATION - Break the land 8 to 10 inches deep with a moldboard plow. Disc and drag harrow to a level surface approximately 2 weeks before planting to allow the soil to settle or become firm.

PLANTING - Disc or harrow immediately before planting to destroy early germinating weeds. Plant 9 to 10 beans per foot of row 1 1/2 inches deep in 36-42 inch rows, using separate openers for fertilizer applications. (Do not run an opening shovel in front of the planter shoe as this leaves the plants in the furrow and results in rapid moisture loss, and the seedbed is not firm or compact.) Plant May 10-20 if season permits.

Use certified seeds of Hill, Hood, Lee or Jackson. Have TZ test run on the seed lot by sending to the N. C. Crop Improvement Association with a \$2.00 service fee.

Treat seed with thiram 50 dust 2 oz. per bu. (4 tablespoons), thiram 75 dust 1 oz. per bu. (2 tablespoons) or slurry, or captan 75 dust 1 1/2 oz. per bu. (3 tablespoons) or slurry. Use the slurry treatment according to manufacturer label.

Inoculate seed with fresh soybean inoculum immediately before planting.

WEED CONTROL AND CULTIVATION - Weed competition can be prevented effectively by a good mechanical weed control program. The mechanical weed control program can be supplemented by a herbicide if desired.

A. Mechanical Weed Control

Plant on a freshly prepared seedbed. Use a rotary hoe when the soil is slightly crusted or the weeds are no more than 1/4 inch high. (Drive approximately 10 miles per hour and weight the rotary hoe so that the soil is well stirred.)

Rotary hoe a second time if necessary before the soybeans are 2 to 2 1/2 inches tall. Use flat sweeps and cultivate shallow as often as needed for weed control.

B. Supplementary Chemical Weed Control

1. Herbicides available for pre-emergence use are:

- (a) Amiben - 3 lbs. active per acre broadcast.
- (b) DNBP - 6 to 9 lbs. active per acre broadcast.
- (c) NPA - 4 to 5 lbs. active per acre broadcast.
- (d) PCP - 18 to 27 lbs. active per acre broadcast.

To reduce cost of materials band treatment may be used. Reduce broadcast rate proportionately according to width of band and row spacing.

2. If needed after pre-emergence treatment, a rotary hoeing may be used until the beans are 2 to 2 1/2 inches tall.

3. After herbicide weed control is gone use flat sweeps and cultivate shallow as often as needed for weed control.

DISEASE CONTROL - Select soils where nematodes would not be expected to limit soybean yields. Variety selection for disease resistance, seed treatment, rotation, and field sanitation are basic measures for the prevention of most disease problems.

Contact Dr. Howard Small or J. C. Wells relative to specific problems.

INSECT CONTROL - A copy of N. C. Extension Circular #381, "Producing Soybeans in N. C." will be furnished each cooperator. The county extension agent will review the insect control section with the individual producer.

Each cooperator will be expected to check his field at weekly intervals, especially after mid-season, for evidence of insect attack. When leaf damage, blossom or pod injury is observed, the cooperator should contact the county extension agent. Send specimen for identification to George D. Jones, Entomology Department, N. C. State College.

HARVESTING - Harvest as soon as soybeans are dry enough to combine to prevent harvest losses. * Determine yield per acre for evaluation.

1. Combine adjustment and operation for normal harvest, kernel moisture 15% or lower:

Cylinder speed	400-500 RPM
Concaves	1 to 3 rows, depending on conditions
Air blast	more than for small grain
Ground speed	2-3 MPH
Reel: speed index	1.25, set reel as high as possible

2. Combine adjustment and operation for high moisture harvesting, kernel moisture up to 20%.

Cylinder speed	800-1000 RPM to give more vigorous threshing action and prevent cylinder loss.
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- * Hill and Lee have good shatter resistance; delaying harvest until kernel moisture is 12% results in insignificant shattering.

RECORDS - Forms will be made available for recording appropriate information on the all-practice demonstration. Retail prices should be recorded for all materials used, if they are either purchased or donated.

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SOYBEAN ALL-PRACTICE DEMONSTRATION RECORD OUTLINE

Cooperator _____ Address _____

1960 Crop _____ Yield _____ Fertility _____ Lime _____

1961 Crop _____ Yield _____ Fertility _____ Lime _____

1962 Lime _____ How applied and mixed _____ Cost _____

Fertilizer broadcast, amount and method _____ Cost _____

Date, method and depth of breaking _____

Date and method of harrowing _____

Date and method of freshening seedbed _____

Seed: Variety _____ Rate of seeding _____ Cost _____

Seed treatment, material _____ Cost _____

Inoculation, manner applied _____ Cost _____

Date of planting _____

Fertilizer at seeding _____ Placement _____ Cost _____

Additional materials, such as manganese _____ Cost _____

Herbicide used (if any) _____

Rate per acre _____ Band or Broadcast _____ Cost _____

Date and method of cultivation (rotary hoe, etc.)

1. _____

2. _____

3. _____

Insects: Light Medium Heavy

1. _____

2. _____

3. _____

Insecticide applications:

Date _____ Amount and kind _____ Cost _____

Disease observations _____

Date of harvest _____ Yield _____