Training program in soybeans for crop hail adjusters¹

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ABSTRACT

A workshop has been developed for training crop hail adjustors in basic aspects of soybean (*Glycine max* (L.) Merr.) production and for reviewing hail adjustment procedures. The workshop is a 2-day program that includes instruction in the classroom and the field. Classroom instruction in soybean production is conducted by members of the university staff. Field instruction in the adjustment of hail losses is provided by adjustors from several companies. Information is presented on the topics discussed in the classroom, the preparation of field material, and program evaluation.

Additional index words: *Glycine max* (L.) Merr., Field day.

I T IS A COMMON practice for farmers in the Midwest to purchase crop insurance as financial protection from hail loss. In Iowa, hail insurance companies paid an average of 35 million dollars a year in claims from 1970 to 1974. Over 1,000 persons in the U. S. are employed to adjust crop hail losses each year.

Accurate hail adjustment is a concern of both the farmer and the insurance company. Cost of insurance for a farmer is based on the amount of money paid by insurance companies for losses in a given area. If companies consistently overpaid losses, the insurance premium will be unnecessarily high. Consistent underpayments will not adequately reimburse the farmer for financial loss from hail damage.

Much of the hail loss adjustment is done by persons employed by insurance companies only during the growing season (June, July, and August). Many adjustors are school teachers who are not employed at their regular profession during the summer. Although these persons are well educated in their specialty, few have had professional training in agronomy.

Training crop hail adjustors is the responsibility of each insurance company. Many of these companies do not employ professional agronomists, and instruction is related primarily to the mechanics of the adjustment procedure. To provide agronomic education for new adjustors, the hail insurance industry has sponsored training programs for certain crops at universities located in the area of production. One of these training programs has been held at Iowa State University (ISU) to provide training for soybean (*Glycine max* (L.) Merr.) adjustors.

The purpose of this paper is to describe the training program that has been in operation at ISU from 1964 to the present.

BACKGROUND

Training of hail adjustors at Iowa State University before 1964 consisted of a field day. The objective of the field day was to provide an opportunity for adjustors to practice their adjustment procedures. Plantings were made at regular intervals during the spring to obtain soybeans at different stages of development. Part of the plantings were used to provide an opportunity for adjustors to practice identifying different stages of soybean development. The other part of the plantings was treated by hand 2 weeks before the field day to simulate different types and percentages of injury, such as defoliation, stem cut-off, and stem breakage. At the field day, adjustors attempted to determine the percentage of yield loss by using standard adjustment procedures. Their determination of loss was compared with that obtained from research results (1, 3).

The field day was useful for practicing various aspects of the adjustment procedure, but it had several weaknesses. It did not provide instruction on soybean growth and production, it failed to provide instructional assistance to those who did not understand adjustment procedures, and handsimulated injury did not provide plant material representative of that normally encountered after a hailstorm.

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In 1964, the decision was made by the National Crop Insurance Association (NCIA), formerly the Hail Insurance Adjustment and Research Association, and the Crop Insurance Research Bureau (CIRB) to expand the training program in soybeans at ISU. A soybean workshop was established that consists of both classroom and field instruction. The present operation of the workshop will be described.

PROGRAM PLANNING

The soybean workshop is planned jointly by the hail insurance industry and ISU representatives. Representatives of the crop hail industry are members of the Iowa research committee of NCIA and CIRB. There are two ISU representatives, one responsible for the classroom instruction, and one for the field program.

Content of the workshop is based on the needs of the crop hail industry. Determination of need is based on an evaluation of the preceding year's program, changes in adjustment procedures during the year, and changes in soybean production practices that may influence loss adjustment. For example, seed production in 1973 was influenced by diseases and adverse weather conditions; therefore, the 1974 program included a session on seed-quality problems that could influence growth and production of soybeans. In 1974 the performance of students in determining stages of development was judged to be less than acceptable; therefore, a classroom session on that topic was added to the 1975 program.

Dates for the workshop are determined 1 year in advance to guarantee room reservations. The program is established 6 months in advance. Registration of participants in the workshop and collection of fees is the responsibility of the hail industry representatives.

CLASSROOM INSTRUCTION

The objective of the classroom sessions is to provide an overview of soybean growth and production. Topics covered are related to factors that can influence the recovery of soybeans from hail damage. The topics for 1974 were

> First morning Structure of the soybean plant Soybean diseases Influence of weather on soybean yields

Second morning

Soybean seed quality and seedling vigor Interaction of chemicals, diseases, and management in soybean production Soybean production; problems and practices.

A 1-hour period was devoted to each of the three topics.

The instructors are members of the ISU faculty with research or extension experience in the topic. Before the workshop, a booklet is prepared that contains the presentations of the instructors. Cost of the booklet is included in the registration fee. It is distributed to the participants on the first day of the workshop.

An examination is given at the end of the second morning. The examination serves to stimulate the learning effort and to identify key points in each of the presentations. The examinations are multiple choice, true-false, or one-word answer problems that can be graded quickly. The graded papers are returned to the participants and are discussed at the beginning of the afternoon program.

FIELD INSTRUCTION

The afternoon programs are devoted primarily to instruction and practice in the use of adjustment procedures. The field day is scheduled for the first afternoon, and a review of problems in soybean adjustment encountered at the field day is made in the classroom on the second afternoon. In the event of inclement weather on the first day, the second day is used for the field experience. In such a case, the program for the first afternoon is a discussion of field experiences from previous years.

The field day consists of a review of the hail adjustment procedure. There are five instruction units of 30 min each. One unit reviews the stages of development that are basic to determining the accurate percentage of loss (2). The instructor reviews the stages, the participants are given stages to determine in the field, and their answers are discussed. The other four units consist of instruction on determining the percentage loss on four plots damaged with a simulated hailstorm. The instructors demonstrate the adjustment procedure, the participants make an adjustment of their own, and their answers are discussed.

Material for instruction on stages of development is prepared by planting four varieties of different maturity and growth habit on five dates. An indeterminate variety too early in maturity for commercial production at Ames, Iowa, is used to obtain an advanced stage of development. An indeterminate variety commonly grown at Ames represents plant material that the adjustor generally will encounter in commercial fields. A determinate variety that matures at Ames and a determinate variety adapted to the southern U.S. provide practice in staging soybeans that produce most of their vegetative growth before flowering beings. The first planting date is before danger of frost has past (approximately April 23) and the last date is 30 days before the field day. The other three dates are evenly spaced between the first and last plantings.

At the field day six stages of development are chosen for the participants to evaluate. The remaining stages that are available provide material for classroom and field instruction. The plant material for stage evaluation is not treated with hail simulation.

A combination of planting dates and varieties are used to obtain four different stages of development for hail simulation. The four stages of development chosen are the most advanced reproductive stage possible, an early reproductive stage, a vegetative stage just before flowering beings, and an early vegetative stage. To obtain an advanced stage of development, a variety too early in maturity for commercial production at Ames is planted before danger of frost has past. For the other stages of development, a variety commonly grown at Ames is planted on three different dates.

Two weeks before the field day, the soybeans at four stages of development are treated with the hail machine (J. C. Freed, and W. R. Fehr. 1974. Evaluation of a machine for simulating hail damage in soybeans. Mimeo. Department of Agronomy, Iowa State Univ., Ames, Iowa. 17 p.). The hail machine blows crushed ice at the plants at air velocities in excess of 125 km/hour. Injury caused by the hail machine is indistinguishable from that caused by a hail storm. Levels of injury used on the four hail simulation plots are chosen by the hail insurance representatives. The injury levels are similar to those most commonly encountered in actual field situations. The amount of plant material required for the field day will be influenced by the number of participants. Each participant should have plant material that can be worked on independently or in a small group. Enrollment at the soybean workshop is limited to 150. The adjustors are divided into five groups for the field day. To provide plant material for each group, we plant 15 m (50 ft) of row of each variety and planting date for instruction on stages of development, and 100 m (300 ft) of row for each of the hail-simulation treatments.

The 15 m of row is adequate for determining stages of development because the soybeans are not damaged by the participants. In the hail-simulation treatments, the participants pull plants as part of the adjustment procedure; therefore, material must be provided for each of the five groups. In a field situation, an adjustor uses 3.3 m (10 ft) of row to assess the hail loss. In preparing the hail simulation material for the field day, the 100 m of row for each treatment are divided into five 20m sections, one for each group of participants. The 20 m (65 ft) of row for each group is subdivided into six 3.3m sections (10 ft) for the adjustors to evaluate. One of the six sections is used by the instructors, and the other five sections are used by the participants.

Personnel required at the field day include five group captains and at least five instructors. Participants are assigned to one of the five group captains. The group captain is responsible for leading his group from one instructor to another at the proper time. At least one instructor is used at the five instruction units, one for stage of development evaluation and one for each of the four hail simulation treatments. Two or more instructors at each instruction unit provides an opportunity for individual tutoring if needed. Instructors generally are experienced crop hail adjustors from different companies.

PROGRAM EVALUATION

An evaluation of the program is made by the workshop committee. The evaluation includes an assessment of both the participants and the instructors.

WOLF & CARSON: DEMONSTRATING PHOTORESPIRATION

Performance of the participants is judged by the questions they asked, their discussion of the topic, the scores of the classroom examination, and their work in the field. Their performance in the classroom helps determine the level of instruction needed on various topics and the need to expand or delete topic areas. Performance of students in the field identifies aspects of the adjustment procedure that may need clarification in training programs of individual companies.

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