RESISTANCE OF SPECIES OF *ARACHIS* TO LESSER CORNSTALK BORER

By

SYED SHAHID KAMAL

Bachelor of Science
Andhra Pradesh Agricultural University
Hyderabad, India
1968

Master of Science
Oklahoma State University
Stillwater, Oklahoma
1973

Submitted to the Faculty of the Graduate College
of the Oklahoma State University
in partial fulfillment of the requirements
for the Degree of
DOCTOR OF PHILOSOPHY
May, 1976

RESISTANCE OF SPECIES OF ARACHIS TO

LESSER CORNSTALK BORER

Thesis Approved:

Don C. Peters
Thesis Adviser

Richard Berberet

Lo Don Claxdlary

Donald J. Banks

James S. Kirby

D. N. Durham
Dean of the Graduate College

ACKNOWLEDGEMENTS

The author is grateful to Dr. Don C. Peters for his help in gathering the data and constructive advice throughout the course of the study.

Deep appreciation is expressed to Dr. Donald J. Banks and Dr. James Kirby for providing plant material used in these tests.

Gratitude is expressed to Drs. Richard C. Berberet and Raymond Eikenbary, for their advice and helpful suggestions in the preparation of this manuscript.

I wish to thank Mrs. Sharon Riddle and Mrs. Madline Koch for rearing the insect larvae.

Appreciation and thanks are also expressed to Dr. David J. Schuster for his helpfulness and encouragement during this research.

I wish to express my thanks to Dr. Ronald W. McNew for helping me out with the statistical analysis of the data.

Last and not least I wish to thank my brothers Mr. Shoukath Kamal and Mr. Mustafa Kamal and my sister Mrs. Naseem Khaja for their encouragement and financial assistance throughout the course of this study.

TABLE OF CONTENTS

LIST OF TABLES

Table		Page

LIST OF FIGURES

CHAPTER I

INTRODUCTION

The lesser cornstalk borer, *Elasmopalpus lignosellus* (Zeller), is a major pest of peanuts, *Arachis hypogaea* (L), throughout the peanut growing regions of the United States. As suggested by the common name, *E. lignosellus* has other host plants but in Oklahoma it is a serious pest of peanuts, especially when they are grown in dryland conditions on sandy soils. The larvae bore into the stem under the ground towards the terminal bud causing dead terminals in older plants and death of the plant in the case of seedlings. The larvae also feed on the pods and pegs causing heavy losses in yield. The value of the crop is also reduced due to reduction in grade of the peanuts.

The lesser cornstalk borer can be controlled with insecticides, but many insecticides leave behind toxic residues. Moreover, the profit of nonirrigated peanuts is marginal and it is often uneconomical to use insecticides. For these reasons alternate methods of protecting crops from insects are being sought; resistant varieties not having these disadvantages, eliminate the problem of continual insecticide control programs. Resistant varieties provide an excellent method which can be incorporated in a pest management program, and are also inexpensive, and relatively permanent.

The plants belonging to the genus *Arachis* are grouped into 30-50 different species. Gregory, *et al*. (1973) considers that the selecting environments of South America have devised 30-50 distinctly different ways to make the peanut. These species are some of the most important materials with which one could correct major defects in the cultivated species, Arachis hypogaea (L).

Peanuts are known by several different names; in some parts of the world they are called goober, pindar, groundnut, and earthnut.

Countries that lead in peanut production are India, Mainland China, Nigeria, Senegal, the United States of America, Indonesia, and Brazil. In the United States, the states that lead in peanut production are Georgia, Texas, North Carolina, Alabama, Virginia and Oklahoma.

The southwestern states, Arkansas, Louisiana, New Mexico, Oklahoma and Texas produce 1/5 of the nation's peanut crop. It is the third most important cash crop in the south, being exceeded only by cotton and tobacco.

Peanuts are primarily used as a vegetable oil crop and their importance as a food crop in world trade has increased in recent years. Peanuts are used for human consumption in the form of whole nuts, peanut butter, peanut confectionaries, peanut oil for such things as salad oil, margarine, and shortening. After crushing and extracting the oil, the remaining peanut meal is a high protein concentrate used as a versatile source of livestock feed. Peanut hay is an excellent high protein feed, ranking close to alfalfa in feed value. In India growing of the peanut plant protects the soil from wind erosion during the winter and the spring.

The objective of this study was to determine the level of resistance in cultivated peanuts in the greenhouse, against the lesser cornstalk borer and to identify wild germ plasm for further testing. There were two main approaches in that other species in the genus *Arachis* were evaluated as were seedlings of advanced breeding material and peanut varieties. The level of resistance in selected *Arachis hypogaea* lines was also evaluated in the field.

CHAPTER II

LITERATURE REVIEW

The Lesser Cornstalk Borer

Elasmopalpus lignosellus

The lesser cornstalk borer was originally described by Zeller (1872). In 1884 and again in 1893, C. V. Riley listed it as injurious to the stalk of corn. Chittenden (1903) reported complaints received in 1899 of injury to beans by the insect in Alabama and South Carolina, and also to peanuts in Georgia.

I (Kamal, 1973) reviewed the distribution, biology, and major parasites and predators. Since that time, Wall (1975) has reported on parasites and predators in Oklahoma. He found in relative order of importance: *Orgilus elasmopalpi* Muesebeck (Braconidae, Hymenoptera); *Pristomeris spinator* (Fabricius) (Braconidae, Hymenoptera); *Invreia mirabilis* Boucek (Chalcididea, Hymenoptera); *Apanteles sp.* (Braconidae, Hymenoptera); *Stomatomyia floridensis* (Townsend) (Tachanidae, Diptera); *Orgilus sp.* (Braconidae, Hymenoptera); *Spilochalris flavopicta* (Cresson) (Chalcididae, Hymenoptera); *Spilochalris sanguinivantris* (Cresson) (Chalcididae, Hymenoptera); *Chelonus texanus* Cresson (Braconidae, Hymenoptera); and *Micropletis croceipes* Cresson (Braconidae, Hymenoptera). Total parasitism percentage never exceeded 25% during Wall's (1975) investigations.

The author (Kamal, 1973) also reviewed cultural and chemical control practices. Hammon, *et al.* (1972) have suggested the use of diazinon granules at the rate of 2.0 lbs. A.I. per acre in irrigated peanuts, fonofos granules 1.5 lbs. A.I. per acre or parathion spray at 0.5 to 0.75 lbs. per acre in the case of dryland peanuts. Smith, *et al.* (1975) have suggested a directed spray to be more effective in the control of the lesser cornstalk borer. In tests conducted by Berberet[1] in Oklahoma for control of lesser cornstalk borer with insecticides have shown that chlorpyrifos has proved to be consistently better than other chemicals he had tested. The Extension Agents Handbook of Insects, Plant Disease and Weed Control (1975) suggests the usage of diazinon granules 2 lbs. per acre and fonofos granules 1.5 lbs. per acre for irrigated peanuts. For dryland peanut they suggest the usage of parathion spray 0.5 lbs. per acre and fensulfothion 1.0 lbs. per acre.

Peanuts

Agronomic Characteristics

The cultivated peanut *Arachis hypogaea* (L) is a member of the family Leguminoseae. The peanut is believed to be a native of Brazil from where it was introduced to other parts of the world (Martin and Leonard, 1967). All evidence points to an origin somewhere in South America.

It is known in the wild state; several related species bearing little resemblance to cultivated forms are found in Brazil and nearby countries. There is great morphological diversity in the wild species. There also appears to be great genetic diversity in the cultivated types.

As indicated in the introduction, the goals sought in these

---

[1]Personal communication with Dr. R. C. Berberet, March 24, 1975.

experiments were genetic characters and not ready made resistant varieties. Resistance was sought in plants of the same crop species and in related species. The agronomic characteristics, botanical description, and approaches to breeding were discussed in more detail by the author (Kamal, 1973).

Pests and Diseases

The common insects that attack peanuts are blister beetles, corn earworms, cutworms, cabbage loopers, fall armyworms, yellow striped armyworms, beet armyworms, leafhoppers, red-necked peanutworms, thrips, webworms, white grubs and wireworms (Oklahoma State University Cooperative Extension Service, 1975).

The common diseases on peanuts found in Oklahoma are seedling blights caused by *Rhizoctonia solani*, *Pythium sp.*, *Fusarium sp.* or *Aspergillus niger*; Crown rots caused by *Aspergillus niger*; Root rots caused by *Rhizoctonia* or Fusarium Root Rot or Wilt caused by *Fusarium sp.*; Stem Rot also called Southern Blight or White Mold caused by *Sclerotium rolfsii*; Peg and Pod Rots caused by *Fusarium sp.*, *Rhizoctonia solani*, *Pythium sp.*, or *Sclerotium rolfsii*; Pepper Spot and Leaf Scroch caused by *Leptosphaerulina crassiasca*; Peanut Rust caused by *Puccinia arachidis*; and Cercospora Leaf spots caused by *Cercospora arachidicola* and *Cercospora personata* (Oklahoma State University Cooperative Extension Service, 1975).

The common nematodes that attack peanuts in Oklahoma are the Northern root-knot nematode, *Meloidogyne hapla*, and the root lesion nematode, *Pratylenchus brachyurus* (Oklahoma State University Cooperative Extension Service, 1975).

Interaction of Peanuts and the

Lesser Cornstalk Borer

Leuck (1967) investigated the lesser cornstalk borer damage to peanut plants. Two types of damage were recognized; one was caused by larvae that fed on the vegetative bud and flower axils, on the stems at ground level, on living leaves touching the soil, and leafy debris under the plant. The second type of damage was caused by larvae feeding on and in the pods and pegs. This type of damage reduces yield and crop quality.

Host plant resistance to the subterranean feeder group has been investigated by Campbell and Emery (1966) and Alexander and Smith (1966). However, insects like the lesser cornstalk borer feed on all portions of the plant.

Leuck, et al. (1967) found that artificial application of a given number of eggs per plant once a year failed to produce significant differences in percentage of damaged pods among plant types or among varieties. They also suggested that uncultivated wild peanuts, Arachis spp. are promising as persistent summer forage legumes.

Leuck and Harvey (1968) devised a method of laboratory screening of peanuts for resistance to the lesser cornstalk borer. Infestations were made by applying 12-13 eggs to each block of seedlings. The data showed that survival varied widely among peanut varieties.

Posada (1973) has found several peanut varieties resistant to the lesser cornstalk borer at an infestation level of three laboratory reared larvae per plant in the greenhouse.

When grown from cuttings, several wild types were found to be highly resistant to the lesser cornstalk borer at infestation levels of ten larvae per plant and with later instar larvae in the greenhouse (Kamal, 1973).

Schuster, *et al.* (1975) found that prostrate lines require insecticidal sprays to be adjusted to protect all plant portions touching the soil surface. They also found that the percent yield reduction were less for resistant lines while supporting relatively high populations of the insect and attributed it to tolerance. Resistant lines also significantly reduced the size of the larvae collected which they attributed to antibiosis.

CHAPTER III

MATERIALS AND METHODS

Greenhouse Tests

Cultivated accessions of peanuts and wild species of Arachis were tested in the entomology greenhouse for resistance to the lesser cornstalk borer, (Elasmopalpus lignosellus). The seeds of cultivated accessions and cuttings of wild species of Arachis were tested in a series of experiments from 1973 to 1975. The entries were identified by their Oklahoma peanut accession numbers (P-No's); when available, other names of accessions were used. In Table 1 (see Appendix) are given the various identification numbers of wild species, their taxonomic section, specific names where known, and their origin.

All factors that could cause the overall damage level to differ were kept as constant as possible. The level of infestation was always uniform; all plants on the bench were infested between the two- and four-leaf stage. The greenhouse was steam heated in the winter and cooled with evaporative batting at one end and exhaust fans at the other in the summer. Greenhouse temperature conditions were kept as constant as possible with thermostatic regulation of heat and exhaust fans. Sand was used as the soil medium in all cases.

Wooden benches 3m x 0.9m, and 18cm deep were constructed. A 13cm deep bed of sand provided adequate substrate for root growth and moisture management. Plastic sewer pipe 7.6cm in diameter was cut to a length of

15cm to produce sleeves in which plants could be grown. These were pushed into the sand in such a manner that half the sleeve was above the sand, and 7.5cm deep in the sand. Sand was filled in the sleeve until a margin of 2.5cm was left from the top. This discouraged the insect from climbing out of the sleeve.

A spacing between sleeves of 25cm x 18cm was maintained in the case of cuttings where 12 entries were used and 14cm x 18cm where 16 entries were used. Randomized block designs were used. Two glass sleeves were placed on opposite sides of the bench and treated in the same manner as the plastic sleeves as a guide for moisture control.

Cuttings of 11 wild species of *Arachis* and the commercial variety Comet were made. Cut ends were treated with a fungicide and planted in square plastic containers, 10cm x 10cm x 10cm, filled with coarse sand. Seven cuttings of each entry were made. All seven were planted in one plastic container. Each cutting had a terminal bud with fresh growth. The cuttings were gently pulled to make certain that they were firm in the sand. The plastic containers were then placed in a mist chamber to strike roots for approximately one month. In the mist chambers, mist was blown in every 10 minutes for 15 seconds during the day and every two hours for 15 seconds at night. The cuttings were then taken out of the mist chamber and transplanted into the sleeves. They were fertilized with 4.5 grams of Peters water soluble (21-7-7) fertilizer dissolved in 4.4 liters of water and 10ml of this solution was poured in the sleeve.

Watering was never done from the top, but was done between the sleeves so that the water could seep into the sleeves. This was done to avoid adverse moisture effects on the insect and also to maintain uniformity of moisture within the sleeve.

As soon as the transplanted cuttings had become established, 10 laboratory reared 1st instar larvae were placed on each plant. Watering was continued in the manner described above, until at least one plant on the bench died due to insect damage. All the plants were pulled out and observations such as webbing (the larvae form a tunnel of silk and soil extending from the feeding site), and the presence of larvae and pupae were recorded.

In the case of peanut accessions, tests of uniformity were conducted using the commercial variety, Comet. It was found that the system was workable and there were no differences due to locations on the bench. It was also found that when the seedlings were infested with five larvae per plant the chances of escaping infestation were greatly reduced.

Seeds were planted in sleeves about 2.5cm deep. If seeds on the experimental bench failed to germinate, the sleeves from a nursery bench were transferred to the experimental bench. The seedlings were infested between the 2- and 4-leaf stage. After several tests it appeared that best ratings could be made when one Comet plant on the bench had died. Comet was used as a check. The plant was given a visual rating based on the scale described below, the presence of larvae or pupae, and the presence of webbing was also noted.

Damage Rating Scale

Damage was evaluated on a 5-point scale which is as follows:

1) apparently healthy;

2) seed leaf (terminal bud) damage or branches missing, but plant otherwise healthy;

3) one or two branches killed;

4) beginning to show wilt; and

5) dead or dying.

Field Tests Conducted in 1974

It was found in the greenhouse that there were several accessions of *A. hypogaea* that showed more resistance on the basis of the visual damage ratio to Comet. By the beginning of the summer of 1974, the following accessions showed promise over the others. The top ranking 15 were P-959, P-215, P-524, P-25, P-2410, P-2451, P-332, P-337, P-900, P-2339, P-112, P-1259, P-2374, P-22, P-46, P-115, and P-203.

A suitable method had to be determined for conducting field tests. Depending on the availability of seed, a majority of the above mentioned accessions based on average rating but not necessarily low visual rating were tested in these experiments. Two experiments were conducted at the Oklahoma State University, Agronomy Research Station, Perkins, Oklahoma.

The experimental plot was sprayed with trifluralin for weed control. Fertilizer (10-20-10) was applied at recommended rates and disked until a fine seed bed was prepared. Both of the experiments were planted on June 14th, 1974, using a V-Belt two-row planter, designed especially for small plots. The rows were spaced 91cm apart and approximately five seeds were planted per 30cm of row.

Experiment I

The entries that were used in the first experiment were P-22, P-112, P-215, P-959, P-2339, P-1259, P-2374, and the variety Comet was used as a check. Each entry was planted in two, 12.2m rows, replicated three times. Each plant in one row of each accession in all replications was infested from beginning of pegging to August, with a combination of eggs and 1st instar larvae. A colony of lesser cornstalk borer was maintained in the laboratory on an artificial diet and first instar larvae were taken to the field, where each larva was picked up by a camels-hair brush and placed on a plant. All entries in the same replication were infested on the same date. After the plants were infested with four larvae per plant, papers containing five eggs were placed at the base of each plant. The plants in the other row of each plot were sprayed with 2.24kg chlorpyrifos A.I. per hectare using a directed sprayer, to control natural infestations. The main object of having the sprayed plots was to make percentage yield reduction comparisons among entries.

Experiment II

The entries that were used in the second experiment were P-2, P-25, P-46, P-47, P-115, P-149, P-254, P-295, P-332, P-371, P-384, P-646, P-850, P-900, P-943, and the variety Comet was used as a check. Each entry was planted in a single 12.2m row replicated three times. Plants in the first 6.1m in this row were infested from the beginning of pegging to August with 1st instar laboratory reared larvae. Each plant in this 6.1m was infested with six larvae per plant during the growing season. All entries in the same replication were infested at the same time. Chlorpyrifos was sprayed on the remaining half of each row to control natural infestations at the rate of 2.24kg A.I. per hectare.

In both experiments foliage feeders became abundant in August and were controlled by spraying carbaryl at the recommended rate. Terraclor® and Dithane M-45® were sprayed to control plant diseases. A single-row digger was used to dig peanut plants which were manually inverted so that the pods would dry. Both experiments were dug on October 29, 1974. The pods were threshed on November 13 and 17, 1974. The peanuts were weighed and graded when they had dried.

Field Tests Conducted in 1975

Three field experiments were conducted in 1975. The experimental plots were sprayed with trifluralin and disked till a fine seed bed was prepared. Experiments I, II, and III were planted at Enos, Oklahoma and Experiments II and III were also planted at Perkins, Oklahoma. Entries included were those of which sufficienct seed was available and that had showed promise in the greenhouse and field experiments that were conducted in the previous year. The seeds were treated with Arasan®, before planting with a hand planter.

Experiment I

The entries that were included in Experiment I were Florigiant, Comet (P-1443), Dixie Spanish (P-1436), and Florunner (P-2339). The experiment was planted June 9th and 10th, 1975. Each entry was planted in twelve 12.2m rows replicated three times. A spacing of 91cm was given between rows and 10.5cm between plants. The plants in six rows of each variety were sprayed with 2.24kg chlorpyrifos A.I. per hectare using a directed spray to control natural infestations. Five plants from rows two and five were pulled up and checked for lesser cornstalk borer infestations at each of three sampling periods. Sampling on July 31, August 14, and September 6 was done to estimate infestations during the major phases of pod development. The soil beneath each plant was sifted to check for the presence of larvae and pupae. A larval count was taken and the larvae were put on an artificial diet to check for the presence of parasites. The total number of pods and pegs touching the soil and the number infested pods and pegs were counted. Such counts were taken in both the unsprayed and sprayed plots. Because of mechanical limitations in spraying the analysis of variance had some aspects of both randomized block and split plot design.

Experiment II

The entries that were included in Experiment II were P-215, P-900, P-959, P-1273, P-1291, P-1436, P-2339, P-2374, Florigiant and Comet. Each entry was planted in four 12.2m rows replicated three times. This experiment was planted at Enos on June 10th and Perkins on June 6th, 1975. The plants in two rows of each accession were sprayed with 2.24kg chlorpyrifos A.I. per hectare using a directed spray to control natural infestations. Five plants were removed from rows one and four to check for lesser cornstalk borer infestations. The soil beneath the plant was sifted to check for the presence of larvae and pupae and a larval count was taken. The total number of pods and pegs touching the soil and the number of infested pods and pegs were counted. The above mentioned observations were taken on August 8, August 19, and September 6. The center two rows were not disturbed until harvest.

Experiment III

This experiment was planted both at Enos and Perkins, Oklahoma. The entries that were included in the third experiment were P-46, P-115, P-194, P-217, P-268, P-305, P-323, P-325, P-332, P-335, P-337, P-357, P-358, P-359, P-374, P-389, P-459, P-900, P-1060, P-1089, P-1093, P-1114, P-1241, P-1242, P-1245, P-1253, P-1256, P-1260, P-1261, P-1262, P-1263, P-1265, P-1279, P-1282, P-1284, P-1293, P-1303, P-1304, P-1306, P-1309, P-1318, P-1345, P-1446, P-1463, P-1466, and the variety Comet was used as a check. The varieties that were omitted at Perkins due to lack of seed were P-323, P-325, P-332, P-398, P-459, P-1261, and P-1262. Each entry was planted in a single 3m row replicated three times. Five plants were left for pod and peg examination, which was done September 27th, the remaining plants at Enos were examined to see evidence of the presence of one or more larval or pupal forms on August 27, 1975.

Foliage feeders were controlled by spraying carbaryl when defoliation became heavy in August. Terraclor® and Dithane M-45® were sprayed to control plant diseases.

A single row digger was used to dig Experiments I and II. The peanut plants were then manually inverted so that the pods and pegs would dry. Experiment I was dug on October 5, 1975 and Experiment II at Enos on October 11, 1975. The peanuts were weighed when dried. Yield data was not collect at Perkins.

CHAPTER IV

RESULTS AND DISCUSSION

Results of Plant Material Propagated by Cuttings

P-1546 was found to be resistant among entries in the first experiment including wild Arachis relatives grown from cuttings. Seeds of this relative were not available so they could not be tested. Kamal (1973) conducted greenhouse tests which indicated that Arachis pusilla was found almost immune to the lesser cornstalk borer when grown from cuttings but was susceptible when grown from seedlings. P-1546 is an annual in its land of origin, Ponta Pora, Paraguay. Paraguay is also considered to be one of the possible homes of the lesser cornstalk borer.

The next entry in level of resistance was P-226. This entry had an average rating of 1.4 compared to 1.2 for P-1546. Comet, which is one of the common cultivated types grown in Oklahoma, was also propagated by means of cuttings and included in the experiment, and had an average rating of 3.0 which was the highest in the test. Several larvae had reached the pupal stage, as indicated in Table 2 (see Appendix). Details such as Collection Nos., P.I. Nos., Taxonomic Sections, species where known and origin of the species are included in Table 1 (see Appendix).

There are several other wild peanut introductions that need to be tested if more work is done with material which can be grown only from cuttings.

Results of Plant Material Grown From Seeds in the Greenhouse

All plants grown from seeds were relatively susceptible to the attack of the lesser cornstalk borer. However, there were a few that appeared to show some resistance when compared to the standard variety, Comet.

Table 3 (see Appendix) includes a list of peanut accessions which were tested in the greenhouse. Additional information that is included in this table is the Okla. "P" number (O.NO); the year in which the variety was tested (YR); the experiment number (EN); the plant introduction number (PINO); the average rating (AR); the range of the rating (RNG); the number of plants with webbing (W); the number of larvae and pupae found (LP); the visual ratio (VR); and the survival ratio (SR). The visual ratio is a number obtained by dividing the average rating of an entry by the average rating of Comet in that experiment. The survival ratio is the total number of larvae and pupae found in that entry divided by the total number of larvae and pupae found in Comet in that experiment.

The list has been arranged according to the visual ratios. The visual ratios were calculated to standardize all the experiments conducted in the greenhouse. Figure 1 (see Appendix) shows the frequency of the occurrence of that ratio in all the experiments that were conducted. A visual ratio lower than 1.0 indicates more resistance as compared to Comet. A visual ratio higher than 1.0 indicates that the variety is more susceptible than Comet. The distribution shows that there were very few resistant types and very few highly susceptible types in the material tested. A majority of the accessions lie in the middle which indicates that they are neither highly resistant nor susceptible.

Figure 2 (see Appendix) shows the frequency of distribution of the number of larvae and pupae found in the accessions. The total number of larvae or pupae (LP) found (see Table 3), could not exceed 25 because each plant was infested with five larvae and five plants were tested. There were 70 entries where no larvae were found. This does not mean that all 70 entries were resistant, because once the plant died the larvae migrated from the dead plant. If the plants have a high larval count and a low visual ratio this indicates that the entry may be tolerant to the attack of the lesser cornstalk borer.

The range (RNG) between the ratings of plants within an accession shows the variability in an entry. There were 161 entries with all plants receiving the same rating. There were 68 varieties that showed a difference of one; 393 entries showed a difference of two; 22 had a difference of three; and 22 had a difference of four. As the rating scale ranged from 1-5, the maximum difference could be four and the minimum a zero. Table 4 (see Appendix) shows the observed values for the Comet checks used for screening for lesser cornstalk borer in greenhouse experiments in 1973, 1974, and 1975. The observed values were an average rating for five plants, the range in the rating, the number of plants with webbing and number of larvae and pupae found in each experiment. Each entry in Table 3 can be compared with the Comet for the respective experiment.

The number of plants with webbing was also recorded. All entries had three or more of the five plants showing webbing. There were 431 in which all the plants had webbing, 129 entries in which four plants had webbing, and 106 entries in which three plants had webbing.

The average rating of the variety Comet was 3.5. When the visual ratios were calculated, if an entry had the best possible of 1.0, then the visual ratio would be 0.2. Thus we can say that a ratio of 0.2 could be classified an optimum ratio and any entry approaching this could be considered as possessing considerably more resistance than the variety Comet in the greenhouse. The entries that were in this category were P-1306, P-1446, and P-1273. The varieties that had a visual ratio between 1.0 and 0.3 could be considered as possessing a higher degree of resistance than Comet, but it is more likely to consider the entries that have a visual ratio of 0.7 and below for advanced testing in the field. However this does not rule out the possibility that any entry that has a visual ratio over 1.0 is not resistant where pod damage is considered. If, on the other hand the average visual rating of an entry were 5.0 and the average rating for Comet 3.0, then the visual ratio would be 1.6. The entries in this category and above were considered highly susceptible. They were P-129, P-1368, P-120, and P-975.

Results of Field Tests Conducted in 1974 and 1975 at Perkins, Oklahoma

In the year 1974, it was found that infesting plants with laboratory reared larvae was not practical on a large scale because it was very expensive and time consuming. The experiment was evaluated on the basis of yield. It was also determined that there were no statistically significant differences in yield loss among the various entries tested. The grams of harvest peanuts per 30.5cm are given in Appendix Table 5 and Table 6 for both 1974 Perkins experiments. Problems with drought stress, gophers, shading by an adjacent woodlot and rains between digging and threshing all contributed to the extreme variability in yield results.

Table 7 (see Appendix) shows an analysis of variance for yield in Experiment I, conducted at Perkins, Oklahoma in 1974. The yields were significantly different for the sprayed and unsprayed plots. As there were no statistically significant differences in varieties x treatment and varieties, an analysis for percentage yield reduction was not calculated. Table 8 (see Appendix) shows the analysis of variance for yield in Experiment II, conducted at Perkins, Oklahoma in 1974. There were no statistically significant differences for any variable.

In 1975 it was decided to subject the plants to a natural infestation based on observations made in 1974, which had indicated that natural infestations of the lesser cornstalk borer were present in the Perkins plots. However, several hundred samples were taken in August and September of 1975 but no infestation was found in the plots.

Results of Field Tests Conducted in 1975 at Enos, Oklahoma

Results of Experiment I

Table 9 (see Appendix) shows the means of percent plants infested with larvae and pupae and percent plants infested with larvae, pupae and emerged pupae, arranged according to variety, time, and treatment for Experiment I. The analysis of the data show that there were highly significant differences (see Table 10, Appendix) in infested plants among the varieties. In the unsprayed plots the mean of the three sampling times shows that Dixie Spanish had 24% plants infested, Comet had 31% plants infested, Florunner had 49% of its plants infested and Florigiant had 52% plants infested with larvae and pupae. In the sprayed plots a similar trend was obtained; Florigiant had the maximum number of plants infested while Dixie Spanish and Comet had the least infested plants.

There were no statistically significant differences in percent infested plants with larvae, pupae and emerged pupae (Table 10, Appendix), but Dixie Spanish had the least infested plants, followed by Comet, Florunner, and Florigiant.

In the variety, Dixie Spanish, fewer plants were infested but a majority of the insects were completing their life cycle as indicated by the increase in infestation of plants with larvae, pupae and emerged pupae. This indicates that the variety possesses some tolerance as compared to other varieties in this experiment. There were no statistically significant differences in percent damaged pods among varieties in this experiment and there were also no differences in replicates. Even though the statistical evaluation resulted in significance for variables other than varieties, pod resistance should not be overlooked.

Table 11 (see Appendix) shows the mean percent damaged pods, percent damaged pegs, and percent damaged pods and pegs arranged according to variety, sampling time and treatment for Experiment I. The mean pod damage for the three sampling times in the unsprayed plots of Florigiant and Florunner was 7.9% and 7.4%. The average percent damaged pegs in the unsprayed plots for Florigiant and Florunner was 19.2% and 20.7%, respectively; while Dixie Spanish had 12.8% damaged pegs and Comet had 15.2% damaged pegs.

This results from the fact that we are dealing with two types of populations. Dixie Spanish and Comet are erect types in growth habit while Florunner and Florigiant have a prostrate growth. On the basis of the data in this experiment it can be concluded that prostrate growing peanuts are more susceptible than the erect type peanuts to the attack of the lesser cornstalk borer.

The data also indicate that when the variables are pooled over the sampling time, every variety in each variable had a considerable difference due to treatment. The plots treated with chlorpyrifos were less infested and there was less pod and peg damage as compared to the untreated. It was also noted that prostrate types had more damaged pods than the erect types in the treated plots. This indicates that the prostrate types require insecticidal sprays to be applied to all plant portions touching the soil surface and cannot be as readily protected from lesser cornstalk borer as on the erect types.

Table 12 (see Appendix) shows the analysis of variance for yield in Experiment I, conducted at Enos, Oklahoma in 1975. The analysis shows that there were significant differences in treatments. There were no differences in varieties and treatment x variety. The means (Table 13, see Appendix) show that Dixie Spanish had 11.8% yield reduction. Florunner was next with a yield reduction of 13.9% followed by Comet with a yield reduction of 18.0% and Florigiant with a yield reduction of 26.7%.

Results of Experiment II

Table 14 (see Appendix) shows the means of percent plants infested with larvae and pupae, as well as means of percent plants infested with larvae, pupae, and emerged pupae, arranged according to variety, sampling time and treatment. There were no statistically significant differences among entries for the combined variables (Table 16, Appendix). However, the averages of the three sampling times in the untreated plots show that P-1436 (Dixie Spanish) had 22% of the plants infested with larvae and pupae. There were 42% of the plants infested when larvae, pupae, and emerged pupae were considered. These data suggest that a majority of the insects on Dixie Spanish were completing their life cycle and it can be said that this entry appears to possess tolerance. In P-900 and P-1443 (Comet), 27% of the plants were infested with larvae and pupae. In P-1443 (Comet) 44% of the plants were infested when larvae, pupae, and emerged pupae were taken into consideration. This also indicates tolerance. Similar is the case in P-900 where 49% of the plants were infested with larvae, pupae, and emerged pupae.

There were statistically significant differences in variety by treatment in percentage damaged pods. It was found that there was more pod damage in the prostrate type peanuts than in the erect type peanuts. However the status of the spreading bunches is not clearly understood and they appear to be intermediate in percent pod damage in the treated plots.

Table 15 (see Appendix) shows the means of percent damaged pods, and percent damaged pegs, arranged according to entries, sampling time and treatment. There were statistically highly significant differences among entries for percent damaged pods (Table 16, Appendix). The averages of the three sampling times in the untreated plots indicate that P-1443 (Comet) had 5.5% damaged pods. Among the entries, P-1273 was the lowest with 5.1% damaged pods. Next in line was P-1436 (Dixie Spanish) which had 6.0% pods damaged. The entry P-900 had 11.4% pods damaged. The rest of the entries that were tested had higher pod damage than the above mentioned entries. The infestation in all entries was higher than the values in Experiment I.

There were statistically significant differences in percent peg damage (Table 16, Appendix). But it is not desirable to use this variable to indicate level of resistance for ranking entries because the prostrate type were producing large numbers of pegs during the third sampling time, while the erect types did not have a large number of pegs at the third sampling time. If only a few pegs were damaged the percent damaged pegs was excessive. There were also significant differences in replicates for percent damaged pegs.

The percent damaged pods plus pegs had highly significant differences. In pooling these variables P-1436 (Dixie Spanish) had 9.6% pod and peg damage, P-1443 (Comet) had 10.2% pod and peg damage, P-900 had 12.8% pod and peg damage and the entry P-1273 had 13.5% pod and peg damage. There were significant differences here in replicates but this may be a carry over from pooling. Based on the data available in this experiment it can be concluded that P-1436, P-1443, P-900, and P-1273 possess low levels of resistance as compared to the others tested in this experiment. The data also indicate that prostrate type peanuts are more susceptible than erect types.

Table 17 (see Appendix) shows the yield in grams per 30.5cm of row in treated and untreated plots and their means for Experiment II. An analysis of variance (Table 18, Appendix) indicated statistically significant differences due to both treatments and varieties. The differences in yield in treated and untreated showed an increase of only 3.3 grams per 30.5 cm of row for P-1436 (Dixie Spanish). P-1273 was next with a difference of 9.8 grams. Comet was third in which 12.4 grams were gained by treatment. By contrast P-1291 showed an increase of 19.9 grams per 30.5cm for a 38.7% increase in yield. Yield differences in varietal response to borer infestation or damage is demonstrated. The analysis also indicated differences in treatment x variety. Even though there may be other explanations for the significant difference in the treatment x variety interaction, it is my conclusion that Dixie Spanish possesses tolerance as the percentage yield difference was found to be the lowest. This conclusion is consistent with the other variables that were analyzed.

On the basis of all the data that were gathered in this experiment it can be concluded that P-1436 (Dixie Spanish) was found to possess considerable resistance as compared to all the other entries that were tested. P-1443 (Comet) also appears to possess more resistance than anticipated when it was selected as a standard. Both these varieties appear to possess some tolerance to the lesser cornstalk borer. The entries P-959, P-900, and P-1273 possess some type of resistance and need to be tested on a larger scale to determine the nature of their resistance. The prostrate type peanuts appear to be highly susceptible to the lesser cornstalk borer in the field. P-2339 (Florunner) and Florigiant were highly susceptible when compared to all the entries tested. The ability of the prostrate type peanuts to produce large number of pegs however should not be overlooked for they may out number the damaged pods and pegs if the growing season of the peanut could be extended as in warmer regions. Because time of harvest in dryland peanuts is extremely important due to the sprouting ability of the peanut seed after a dry spell followed by rain, it is considered highly unlikely that the prostrate types could produce more pods to compensate for the damaged pods in this part of the state.

<u>Results of Experiment III</u>

The results at Enos are shown in Table 19 (see Appendix) for the pods per plant at both sampling times and the percentage damaged pods for the two sampling times. The mean for the percent damaged pods was calculated for both the sampling times to make comparisons among entries. P-1443 (Comet) had the least damage as compared to all the entries based on the percent damaged pod scale in sampling time one. The mean percentage damage of all the entries in sampling time one was 5.4. Comet in the same sampling time had 1.9% damage. The results of sampling time one do not necessarily indicate trends because all the entries had not produced pods. Obviously if the plant had not produced any pods at that time there could not have been pod damage.

In sampling time two, the mean percent damaged pods was 14.5. Again, in sampling time two, P-1443 was among the entries that had the least percent pod damage. The top five entries in this sampling time were P-1241, P-1265, P-1304, P-1443, and P-1303.

Table 20 (see Appendix) shows the number of pegs a plant had produced by sampling time one and two, and the percent damaged pegs that were found in both sampling times. The table also shows the percentage of plants that were infested by the lesser cornstalk borer as determined by the presence of larvae or pupae. The means of the overall pegs per plant, percentage damaged pegs, and percentage of infested plants with lesser cornstalk borer were calculated.

Table 21 (see Appendix) shows the analyses of variance for pods per plant, percent damaged pods and infested plants for sampling time two in Experiment III, conducted at Enos, Oklahoma. The data show that pods per plant were highly significant among varieties, and there were also significant differences in the percent damaged pods among entries. There were no significant differences in infested plants among entries. Due to the unavailability of seed material, the experiment was conducted on a relatively small scale and the entries that showed promise in this experiment should be further tested on a larger scale.

Posada (1973) had screened peanut accessions with three larvae per plant. He used a four point damage rating scale and concluded that there were over a hundred accessions resistant in the greenhouse. We screened peanut accesssions with five larvae per plant and based resistance on a visual ratio in the greenhouse. Schuster, et al. (1975) found that the variety Comet was highly susceptible to the attack of the lesser cornstalk borer. Results of our experiments indicate that Comet possessed low level of resistance and Florigiant was highly susceptible in contrast to findings of Schuster, et al. (1975). Further investigation into the environmental effects on the expression of field resistance needs to be conducted.

CHAPTER V

SUMMARY

In the greenhouse 666 cultivated peanut accessions and 10 accessions of wild species of Arachis were tested for resistance against the lesser cornstalk borer. Several aspects were taken into consideration while measuring the degree of resistance. The visual ratio was found to be the best measure of resistance for the population that was screened. Entries were divided into 67 experiments that were conducted in the Controlled Environmental Research Laboratory on the Oklahoma State University campus.

Several species of Arachis were found to be resistant to the attack of the lesser cornstalk borer when compared to the variety Comet. P-1546 (P.I. 276225) was found to be highly resistant, when grown from cuttings.

In general the wild types were more resistant than the cultivated types. There were several accessions of Arachis hypogaea that showed a considerable level of resistance in the greenhouse. They were P-1306 (P.I. 268878), P-1466 (P.I.295199), P-1273, P-959 (Virginia Bunch 67), P-1260, P-1181 (P.I. 298842), P-1182 (P.I. 298843), P-1187 (P.I. 298851), P-1191 (P.I. 298852), P-1262, P-1263, and P-1337 (P.I. 145048), arranged in order of desirable visual ratios.

Field experiments were conducted for two years. Experiments in 1974 conducted at the Agronomy Research Station at Perkins indicated that artificial infestation of lesser cornstalk borer larvae and a combination of larvae and eggs failed to cause significant differences in percentage yield loss between the treated and the untreated plots.

In 1975 experiments conducted at Enos, Oklahoma, showed that there were highly significant differences among varieties in infested plants when grown on a large scale and subjected to a natural infestation. There were no significant differences in percent yield loss between the treated and untreated plots.

Three experiments were conducted at Enos, Oklahoma. In Experiment I it was determined that prostrate type peanuts were more susceptible compared to the erect types. The varieties Dixie Spanish and Comet possess low level resistance in the field which could be attributed to tolerance.

In Experiment II, 10 peanut accessions were tested. It was found that the variety Dixie Spanish, Comet, P-900 (P.I. 259603), P-959 (Virginia Bunch 67), and P-1273 possessed low level resistance as compared to the other entries in the test. This experiment also showed that the prostrate types were more susceptible to the attack of the lesser cornstalk borer than the erect types. More intensive studies need to be conducted on a larger scale to determine the components of resistance of P-900, P-959, and P-1273.

In Experiment III, 48 peanut accessions were tested; the results indicate that there is low level resistance in P-1241 (P.I. 306226), P-1304 (P.I. 259647), P-1443 (Comet) and P-1303 (P.I. 259647). Experiments with these entries need to be conducted on a larger scale to compare these to the variety Dixie Spanish.

In conclusion it can be stated that there is low level resistance present in the germ plasm that was tested. The wild species of *Arachis* are highly resistant to the attack of the lesser cornstalk borer, when grown from cuttings. The resistance from the wild types should be incorporated into the cultivated peanuts.

LITERATURE CITED

Alexander, M. W. and J. C. Smith. 1966. Resistance to the southern corn rootworm in peanuts. Virginia J. Sci. 17(4):240.

Campbell, W. V. and D. A. Emergy. 1966. Resistance of peanuts to an insect complex. Proc. 4th. Nat. Peanut Res. Conf. 108 pp.

Chittenden, F. H. 1903. The principal injurious insects in 1902. U. S. Dept. Agr. Year Book for 1902. 726-733.

Gregory, W. C., M. P. Gregory, A. Krapovickas, B. W. Smith, and J. A. Yarbrough. 1973. Structure and Genetic Resources of Peanuts. In Peanut Culture and Uses. American Peanut Research and Educational Association. June, 1973. 684 pp.

Hammon, P. J., C. E. Hoelscher, and J. W. Smith. 1972. Texas guide for controlling insects on peanuts. Texas Agric. Ext. Serv. 5M-4-72. Revised. 6 pp.

Kamal, S. S. 1973. Resistance of wild species of Arachis and peanut cultivars to lesser cornstalk borer. Unpublished M. S. Thesis, Oklahoma State University, Stillwater. 44 pp.

Leuck, D. B. 1967. Lesser Cornstalk borer damage to peanut plants. J. Econ. Entomol. 60(6):1549-1551.

Leuck, D. B., R. O. Hammons, L. W. Morgan, and J. E. Harvey. 1967. Insect preference for peanut varieties. J. Econ. Entomol. 60(6):1546-1549.

Leuck, D. B. and J. E. Harvey. 1968. Methods of laboratory screening of peanut germ plasm for resistance to the lesser cornstalk borer. J. Econ. Entomol. 61(2):583-584.

Martin, J. H. and W. H. Leonard. 1967. Principles of field crop production. 2nd Edition. New York: McMillan. 689-704.

Oklahoma State University Cooperative Extension Service. 1975. Extension Agents Handbook of Insects, Plant Diseases, and Weed Control. 177 pp.

Posada, L. 1973. Screening of peanut cultivars for resistance to the lesser cornstalk borer, Elasmopalpus lignosellus (Zeller). Unpublished Ph.D. Dissertation, Texas A & M University, College Station. 114 pp.

Schuster, D. J., D. C. Peters, S. S. Kamal, and R. C. Berberet. 1975. Field comparisons of peanut varieties resistant to the lesser cornstalk borer. J. Econ. Entomol. 68(5):704-706.

Smith, J. W., Jr., P. W. Jackson, R. L. Halloway, and C. E. Hoelscher. 1975. Evaluation of selected insecticides for control of lesser cornstalk borer on Texas peanuts. Progress Report, Texas Agricultural Experiment Station. PR33-3. 16 pp.

Wall, R. G. 1975. A survey of parasitoids associated with lepidopterous pests of peanuts. Unpublished M. S. Thesis, Oklahoma State University, Stillwater, 38 pp.

Zeller, P. C. 1872. Beitrage zur kenntnigs der Nordamerikanschen nachialter besonders der microlepidopteran. In Verhandl. K. K. Zool. Bot. Gesells. Wien, Bd 22. 446-566. (not seen)

APPENDIXES

Table 1. Wild Species of *Arachis* screened for lesser cornstalk borer resistance.

Okla. No.	Collection Nos.	P.I. Nos.	Taxonomic Section	Species	Origin
P-226	GKP 9990	261877	Erectoides	*A. sp.*	Corumba, Mato, Grosso, Brazil
P-234	GKP 9530	262808	Axonomorphae	*A. correntina*	Corrientes, Argentina
P-238	GKP 9646	262842	Erectoides	*A. paraguariensis*	Bela Vista, Mato Grosso, Brazil
P-1546	GKP 10573	276225	Erectoides	*A. sp.*	Ponta Pora, Paraguay
P-1548	GKP 10576	276228	Erectoides	*A. sp.*	Ponta Pora, Paraguay
P-1549	GKP 10580	276229	Erectoides	*A. sp.*	Ponta Pora, Paraguay
P-1551	GKP 10585	276231	Erectoides	*A. paraguariensis*	Ponta Pora, Paraguay
P-1879	GKP 10034	262142	Erectoides	*A. rigonii*	Santa Cruz, Bolivia
P-1881	GKP 9646	262842	Erectoides	*A. paraguariensis*	Bela Vista, Mato Grosso, Brazil
P-1885	GKP 9926	262275	Axonomorphae	*A. helodes*	Cuiaba, Mato Grosso, Brazil

Table 2. Evaluation of cuttings of wild species of Arachis infested with 10 first instar lesser cornstalk borers per plant.

Okla. No.	Visual Rating and Other Observations[a]					Average Rating
	R1	R2	R3	R4	R5	
P-226	1-0	2-0W	2-0W	1-0	1-0	1.4
P-234	1-0W	2-0W	2-0W	1-0	2-0W	1.6
P-238	2-0W	1-0	2-0W	2-0W	1-0	1.6
P-1546		1-0	1-0	1-0	2-0W	1.2
P-1548	1-0	1-0	1-0	3-0W	4-0W	2.0
P-1549	1-0	4-0W	2-0W	1-0	2-0W	2.0
P-1551	1-0	5-0W	1-0	1-0	2-0	2.0
P-1879	2-0W	1-0	2-0W	2-0W	2-0W	1.8
P-1881	1PW	1-0	2-0W	2-0W	2-0W	1.6
P-1885	2-0W	2-0W	2-0W	2-0W	1-0	1.8
Comet	4PPW	3PPW	3-0W	2-0W	3PW	3.0

[a] -0 = no larvae or pupae found; P = pupae found; PP = two pupae found; W = webbing present.

Table 3. Peanuts (Arachis hypogaea) screened for lesser cornstalk borer in 1973, 1974, and 1975.

O.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR a/
P1306	74	52	268878	1.0	1-1	3	01	0.2	0.5
P1466	74	47	295199	1.0	1-1	3	00	0.2	0.0
P1273	74	51	900036	1.6	1-3	3	00	0.3	0.0
P0959	73	26	900141	1.2	1-2	5	08	0.4	4.0
P1260	74	51	900031	1.8	1-3	5	01	0.4	0.2
P1261	74	51	900032	1.8	1-3	5	02	0.4	0.5
P0215	73	31	900115	2.2	1-5	5	06	0.5	1.5
P1181	75	67	298842	2.6	2-3	5	04	0.5	2.0
P1182	75	67	298843	2.8	2-3	5	04	0.5	2.0
P1187	75	67	298851	2.5	2-3	4	01	0.5	0.5
P1191	75	67	298852	2.6	2-3	3	03	0.5	1.5
P1262	74	51	900033	2.3	1-3	3	01	0.5	0.2
P1263	74	51	900034	2.3	1-3	5	01	0.5	0.2
P1337	74	53	145048	1.8	1-3	5	01	0.5	0.3
P0025	73	28	229553	2.4	1-3	5	04	0.6	0.4
P0524	73	15	261977	1.8	1-3	5	02	0.6	0.7
P1174	75	67	298835	3.3	2-5	3	01	0.6	0.5
P1183	75	67	298844	3.2	2-5	4	05	0.6	2.5
P1184	75	67	298845	3.2	2-5	4	04	0.6	2.0
P1193	75	67	298855	3.0	3-3	3	00	0.6	0.0
P1195	75	67	298857	3.3	3-4	3	02	0.6	1.0
P1208	75	67	298877	3.0	3-3	4	00	0.6	0.0
P1216	75	65	300242	2.0	2-2	3	01	0.6	1.2
P1231	75	64	300594	2.7	2-3	4	02	0.6	2.0
P1237	75	64	306222	2.5	2-3	4	00	0.6	0.0
P1242	74	49	306227	2.5	1-5	4	02	0.6	0.6
P1265	74	51	900035	3.0	3-3	5	03	0.6	0.7

Table 3 (Continued)

O.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR
P1282	74	51	900042	3.0	1-5	5	02	0.6	0.5
P1291	74	50	290613	2.6	1-5	5	03	0.6	1.0
P1293	74	50	292278	3.0	1-5	5	02	0.6	0.6
P1453	74	47	288122	2.3	1-3	3	01	0.6	0.5
P1462	74	48	295185	2.3	1-3	3	00	0.6	0.0
P0022	73	28	900081	2.8	2-3	5	02	0.7	0.2
P0046	73	28	237510	2.6	1-3	5	04	0.7	0.4
P0112	73	22	121070	2.6	1-3	5	03	0.7	1.0
P0115	73	28	121070	2.8	2-3	5	09	0.7	1.0
P0194	73	32	900099	2.6	2-3	3	07	0.7	1.2
P0203	73	31	900113	3.0	3-3	5	02	0.7	0.5
P0207	73	31	900114	3.0	3-3	5	02	0.7	0.5
P0217	73	31	234417	3.0	3-3	5	03	0.7	1.8
P0268	73	31	262811	3.0	3-3	5	02	0.7	0.5
P0305	73	31	259777	3.0	3-3	5	05	0.7	1.3
P0323	73	31	259594	3.0	3-3	5	04	0.7	1.0
P0325	73	33	259680	2.8	2-3	5	06	0.7	0.8
P0332	73	10	259800	3.4	3-5	5	03	0.7	0.3
P0335	73	31	268768	3.0	3-3	5	08	0.7	2.0
P0337	73	10	259637	3.4	3-5	5	02	0.7	0.2
P0357	73	31	268611	3.0	3-3	5	09	0.7	2.6
P0358	73	31	268615	3.0	3-3	5	04	0.7	1.0
P0359	73	31	268616	3.0	3-3	5	04	0.7	1.0
P0362	73	35	268626	3.4	3-5	5	14	0.7	4.7
P0374	74	54	268648	3.0	3-5	4	08	0.7	2.6
P0389	74	54	268689	3.0	3-3	3	01	0.7	0.3
P0459	74	55	270786	3.6	3-5	3	01	0.7	1.0

Table 3 (Continued)

O.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR
P0900	73	13	259603	3.0	3-3	5	03	0.7	0.8
P1060	74	41	313146	3.0	3-3	5	00	0.7	0.0
P1089	74	47	313184	2.5	1-3	4	01	0.7	0.5
P1093	74	41	313190	3.0	3-3	3	01	0.7	0.2
P1114	74	44	314896	3.8	3-5	5	03	0.7	1.0
P1197	75	67	298860	3.4	2-5	4	01	0.7	0.5
P1203	75	65	298869	2.2	2-3	4	02	0.7	1.2
P1205	75	67	298872	3.6	3-5	3	00	0.7	0.0
P1232	75	64	300595	3.0	3-3	4	00	0.7	0.0
P1233	75	64	300596	2.8	2-3	5	02	0.7	2.0
P1234	75	64	306217	3.0	3-3	4	00	0.7	0.0
P1235	75	64	306218	3.0	3-5	3	00	0.7	0.0
P1241	74	49	306226	2.6	1-5	5	01	0.7	0.3
P1245	74	49	306231	2.6	1-3	5	04	0.7	1.3
P1253	74	49	311262	2.6	1-5	4	01	0.7	0.3
P1256	74	49	311265	2.6	1-5	5	02	0.7	0.6
P1259	73	23	900151	2.2	1-3	4	00	0.7	0.0
P1279	74	51	900089	3.4	3-5	5	03	0.7	0.7
P1284	74	50	900043	3.4	3-5	5	01	0.7	0.3
P1303	74	52	259647	3.0	3-3	3	01	0.7	0.5
P1304	74	52	259647	3.0	1-5	4	04	0.7	2.0
P1309	74	52	288205	3.0	3-5	4	02	0.7	1.0
P1318	74	52	295738	3.0	3-3	3	01	0.7	0.5
P1345	74	54	152106	3.3	2-5	3	01	0.7	0.3
P1397	75	63	246390	2.7	2-3	4	00	0.7	0.0
P1407	75	62	259595	2.7	2-3	4	01	0.7	0.5
P1463	74	48	295188	2.6	1-5	3	04	0.7	4.0

Table 3 (Continued)

O.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR
P2339	73	13	900156	3.0	3-3	5	04	0.7	1.0
P2374	73	26	900013	2.0	1-5	5	09	0.7	4.5
P2401	73	09	900030	3.0	3-3	5	03	0.7	0.5
P2415	73	09	900104	3.0	3-3	5	02	0.7	0.3
P0002	73	27	900075	2.8	2-3	5	02	0.8	0.3
P0010	73	28	900078	3.2	3-4	5	05	0.8	0.6
P0017	73	28	161300	3.0	3-3	5	04	0.8	0.4
P0036	73	26	900082	2.5	1-3	4	07	0.8	3.5
P0045	73	28	237508	3.0	3-3	5	06	0.8	0.7
P0047	73	08	237509	2.6	1-3	4	00	0.8	0.0
P0058	73	28	900083	3.0	3-3	5	13	0.8	1.4
P0149	73	30	162408	2.8	1-4	5	12	0.8	3.0
P0184	73	32	900106	3.0	3-3	5	04	0.8	0.7
P0189	73	31	900108	3.4	3-4	5	03	0.8	0.6
P0295	73	35	259662	3.6	2-5	5	07	0.8	2.3
P0297	73	35	259600	3.6	3-5	5	04	0.8	1.3
P0298	73	33	259681	3.2	2-4	5	06	0.8	0.8
P0317	73	31	259660	3.2	3-4	5	06	0.8	1.5
P0318	73	33	259677	3.2	3-4	5	09	0.8	1.1
P0330	73	10	152125	3.8	3-5	5	05	0.8	0.5
P0336	73	33	268771	3.0	3-3	5	08	0.8	1.0
P0345	73	33	268595	3.0	3-3	5	05	0.8	0.6
P0347	73	33	268595	3.0	3-3	5	06	0.8	0.8
P0353	73	33	268607	3.0	3-3	5	11	0.8	1.2
P0354	73	33	268609	3.0	3-3	5	09	0.8	1.1
P0355	73	31	268609	3.4	3-5	5	07	0.8	1.6
P0356	73	31	268611	3.4	3-5	5	07	0.8	1.8

Table 3 (Continued)

O.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR
P0371	73	16	268644	2.2	1-5	5	00	0.8	0.0
P0398	74	54	268704	3.7	3-5	4	03	0.8	1.0
P0462	74	55	270804	4.0	3-5	4	03	0.8	3.0
P0533	75	58	262013	4.2	3-5	5	02	0.8	1.0
P0539	75	58	261965	4.2	3-5	5	02	0.8	1.0
P0544	73	38	248756	2.3	1-3	3	01	0.8	0.1
P0552	73	39	248763	3.0	3-3	3	02	0.8	0.6
P0565	73	14	268597	2.6	1-3	5	04	0.8	1.3
P0578	73	39	268627	3.0	3-3	5	01	0.8	0.3
P0596	74	48	268664	3.0	3-3	5	01	0.8	1.0
P0601	74	48	288669	3.0	3-3	5	01	0.8	1.0
P0602	74	48	268669	3.0	3-3	5	01	0.8	1.0
P0604	74	48	268672	3.0	3-3	5	02	0.8	2.0
P0629	74	48	268708	3.0	3-3	5	02	0.8	2.0
P0671	73	12	268747	2.8	2-3	5	03	0.8	0.6
P0714	73	13	268773	3.2	3-4	5	05	0.8	1.3
P0763	73	14	270792	2.6	1-3	5	02	0.8	0.7
P0765	73	23	270830	3.0	3-3	4	03	0.8	3.0
P0788	73	13	259821	3.2	3-4	5	05	0.8	1.3
P0800	73	13	261921	3.4	3-5	5	06	0.8	1.5
P0823	73	22	247374	3.0	3-3	3	01	0.8	0.3
P0838	73	14	268687	2.8	1-5	5	02	0.8	0.7
P0843	73	13	268632	3.4	3-4	5	09	0.8	2.3
P0850	73	17	268650	2.4	2-3	5	10	0.8	1.6
P0871	73	13	268752	3.2	3-4	5	05	0.8	1.3
P0943	73	19	290580	2.3	1-3	3	01	0.8	0.3
P1051	74	41	313138	3.4	3-5	5	02	0.8	0.4

Table 3 (Continued)

G.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR
P1097	74	41	313193	3.4	3-5	5	00	0.8	0.0
P1104	74	41	313200	3.4	3-5	5	02	0.8	0.4
P1109	74	41	314048	3.4	3-5	5	01	0.8	0.2
P1134	74	43	280691	3.0	1-5	4	01	0.8	0.5
P1188	75	66	298849	2.4	2-3	4	03	0.8	0.7
P1200	75	67	298863	4.0	3-5	4	02	0.8	1.0
P1207	75	65	298873	2.5	2-3	4	05	0.8	1.2
P1225	75	64	300588	3.4	2-5	5	00	0.8	0.0
P1230	75	64	300593	3.4	3-5	5	00	0.8	0.0
P1252	74	49	311003	3.0	1-5	3	01	0.8	0.3
P1277	74	51	900039	3.8	3-5	5	02	0.8	0.5
P1278	74	51	900037	4.0	3-5	4	02	0.8	0.5
P1280	74	51	262094	3.6	3-5	3	02	0.8	0.5
P1289	74	50	290612	3.8	3-5	5	04	0.8	1.3
P1290	74	50	292279	3.8	3-5	5	03	0.8	1.0
P1307	74	52	288106	3.2	1-5	3	00	0.8	0.0
P1313	74	52	295241	3.3	3-4	3	03	0.8	1.5
P1322	74	53	297393	3.0	1-5	5	02	0.8	0.6
P1328	74	53	119876	3.0	1-5	3	01	0.8	0.3
P1329	74	53	119880	3.0	3-3	3	01	0.8	0.3
P1334	74	53	121521	3.0	3-3	5	01	0.8	0.3
P1336	74	53	145042	3.0	1-5	5	01	0.8	0.3
P1364	75	60	215724	3.0	3-3	3	00	0.8	0.0
P1367	75	60	221062	3.0	3-3	3	00	0.8	0.0
P1375	75	62	229657	3.4	3-5	5	02	0.8	1.0
P1390	75	63	240558	2.8	3-3	5	00	0.8	0.0
P1392	75	63	240568	3.0	3-3	5	00	0.8	0.0
P0114	73	28	121070	3.2	2-5	5	09	0.8	1.0
P1189	75	66	298850	2.6	2-3	3	00	0.8	0.0

Table 3 (Continued)

O.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR
P1393	75	63	240569	3.0	3-3	5	02	0.8	2.0
P1401	75	63	257546	3.0	3-4	5	00	0.8	0.0
P1403	75	63	259576	2.8	2-3	5	00	0.8	0.0
P1405	75	62	259589	3.4	3-5	5	01	0.8	0.5
P1406	75	62	259590	3.4	3-5	5	04	0.8	2.0
P1412	75	62	259832	3.3	2-5	3	00	0.8	0.0
P1414	75	63	262129	3.0	3-3	5	00	0.8	0.0
P1415	75	63	264190	2.8	2-3	5	00	0.8	0.0
P1424	74	45	269688	3.2	3-4	5	11	0.8	0.0
P1443	74	46	900067	3.0	3-3	5	02	0.8	0.0
P1447	74	46	900071	3.0	3-3	5	03	0.8	0.0
P1450	74	46	900048	3.0	3-3	5	00	0.8	0.0
P1452	74	47	900046	3.0	1-5	5	04	0.8	2.0
P1454	74	46	288124	3.2	2-5	4	03	0.8	0.0
P1455	74	46	288133	3.0	3-3	5	04	0.8	0.0
P1459	74	46	288169	3.2	2-5	5	03	0.8	0.0
P1461	74	47	292692	2.8	2-3	5	01	0.8	0.5
P1469	74	47	295268	3.0	3-3	5	01	0.8	0.5
P1757	73	06	900011	2.5	1-3	3	00	0.8	0.0
P1759	73	06	900006	2.4	1-3	5	00	0.8	0.0
P2397	73	06	268689	3.8	3-5	4	02	0.8	0.0
P2404	73	09	900103	3.4	3-5	5	04	0.8	0.7
P2419	73	09	259747	3.2	3-4	5	09	0.8	1.5
P0024	73	24	229656	2.8	2-3	5	14	0.9	2.8
P0029	73	24	234375	2.8	2-3	5	08	0.9	1.6
P0087	73	28	900090	3.0	3-4	5	11	0.9	1.2
P0117	73	28	121070	3.6	3-5	5	12	0.9	1.3

Table 3 (Continued)

O.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR
P0151	73	22	900094	3.4	3-4	5	05	0.9	1.7
P0160	73	32	223683	3.5	3-5	4	07	0.9	1.2
P0161	73	32	900095	3.4	3-5	5	06	0.9	1.0
P0167	73	32	162409	3.6	3-5	5	05	0.9	0.8
P0176	73	36	900105	3.6	3-5	3	07	0.9	3.5
P0195	73	32	900100	3.4	3-5	5	07	0.9	1.2
P0197	73	32	900110	3.6	3-5	5	11	0.9	0.8
P0198	73	32	162538	3.6	3-5	5	06	0.9	1.0
P0206	73	34	161867	3.6	3-5	5	09	0.9	0.9
P0214	73	10	242100	4.2	3-5	5	04	0.9	0.4
P0292	73	35	900123	4.0	3-5	5	07	0.9	2.3
P0299	73	33	259617	3.6	3-3	5	07	0.9	0.9
P0302	73	33	259774	3.4	3-5	5	07	0.9	0.9
P0303	73	33	259665	3.4	3-5	5	06	0.9	0.8
P0322	73	10	259805	4.2	3-5	5	06	0.9	0.5
P0321	73	35	259732	4.0	3-5	5	09	0.9	3.0
P0327	73	35	900130	4.3	3-5	3	03	0.9	1.0
P0339	73	10	259678	4.2	3-5	5	07	0.9	0.6
P0346	73	33	268595	3.4	3-5	5	05	0.9	0.6
P0351	73	10	268599	4.0	3-5	5	03	0.9	0.3
P0352	73	10	268601	4.4	3-5	5	08	0.9	0.7
P0360	73	10	268616	4.4	3-5	5	05	0.9	0.6
P0370	73	35	268644	4.0	3-5	3	04	0.9	1.3
P0373	73	07	268647	3.0	3-3	5	06	0.9	1.0
P0384	73	07	268680	3.0	3-3	5	01	0.9	0.2
P0386	73	07	268686	3.4	3-5	5	04	0.9	0.6
P0394	74	54	268692	4.0	3-5	5	06	0.9	2.0

Table 3 (Continued)

O.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR
P0399	74	54	268704	3.8	3-5	5	03	0.9	1.0
P0405	73	09	268708	3.8	3-5	5	00	0.9	0.0
P0406	74	55	268710	4.2	3-5	5	02	0.9	2.0
P0410	73	07	268716	3.0	3-3	5	02	0.9	0.3
P0412	74	55	268724	4.4	2-5	5	02	0.9	2.0
P0416	73	07	268739	3.0	3-3	4	03	0.9	0.5
P0420	73	07	268742	3.0	3-3	5	04	0.9	0.7
P0429	74	56	268771	3.4	3-5	5	06	0.9	2.0
P0435	73	17	268790	2.8	2-3	5	06	0.9	1.0
P0443	74	55	268821	4.2	3-5	5	00	0.9	0.0
P0445	73	18	268823	3.2	2-5	5	08	0.9	1.0
P0456	74	55	270773	4.2	3-5	5	03	0.9	3.0
P0458	73	07	270784	3.0	3-3	5	05	0.9	0.8
P0460	73	08	270789	2.8	2-3	5	05	0.9	0.7
P0468	73	11	274267	3.0	3-5	5	03	0.9	0.4
P0481	75	58	262101	4.5	3-5	4	04	0.9	0.8
P0506	75	58	274201	4.6	4-5	3	02	0.9	0.6
P0511	73	11	261933	3.0	3-5	5	07	0.9	1.0
P0513	75	59	261938	4.0	3-5	4	04	0.9	2.0
P0514	75	59	261927	4.0	3-5	3	04	0.9	2.0
P0520	75	59	261958	3.8	3-5	5	00	0.9	0.0
P0530	75	59	261995	4.0	5-5	4	04	0.9	2.0
P0535	75	57	262005	3.7	3-5	4	03	0.9	1.0
P0540	75	58	262104	4.5	3-5	4	01	0.9	0.8
P0545	74	38	262087	3.0	3-3	4	06	0.9	0.7
P0556	73	37	247368	3.2	3-5	4	05	0.9	1.7
P0574	74	38	268623	3.0	3-3	5	03	0.9	0.3

Table 3 (Continued)

O.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR
P0590	74	48	268642	3.4	3-5	5	03	0.9	3.0
P0591	74	48	268646	3.4	3-5	5	00	0.9	0.0
P0609	74	48	268677	3.4	3-5	5	02	0.9	2.0
P0617	74	48	268696	3.5	3-5	4	01	0.9	1.0
P0642	73	15	268721	2.6	1-5	5	00	0.9	0.0
P0659	73	12	268737	3.0	3-3	5	04	0.9	1.0
P0676	73	12	268754	3.0	3-3	5	06	0.9	1.5
P0775	73	27	259591	3.0	3-3	5	06	0.9	0.9
P0776	73	22	259598	3.4	3-5	5	03	0.9	1.0
P0777	73	13	900146	3.6	3-5	5	06	0.9	1.5
P0780	73	18	259753	3.0	3-3	5	02	0.9	0.3
P0790	73	27	259827	3.0	3-3	5	03	0.9	0.4
P0791	73	18	259860	3.0	2-4	5	10	0.9	1.4
P0799	73	18	261919	3.0	3-3	3	04	0.9	0.5
P0801	73	18	261923	3.0	3-3	4	01	0.9	0.1
P0831	73	14	268595	3.0	3-3	4	05	0.9	1.7
P0845	73	19	268640	2.6	1-3	5	03	0.9	1.0
P0863	73	14	268687	3.2	1-5	5	06	0.9	2.0
P0874	73	13	268759	3.8	3-5	5	07	0.9	1.8
P0876	73	13	268780	3.6	3-5	5	09	0.9	2.3
P0877	73	14	268781	3.0	1-5	5	00	0.9	0.0
P0878	73	15	268788	2.6	1-3	5	02	0.9	0.7
P0892	73	14	259719	3.0	3-3	5	04	0.9	1.3
P0967	73	14	299469	3.0	3-3	4	02	0.9	0.1
P0974	73	18	149634	3.0	3-3	5	05	0.9	0.7
P1086	74	44	313181	3.6	3-5	5	06	0.9	2.0
P1098	74	41	313194	3.6	3-5	3	02	0.9	0.4

Table 3 (Continued)

O.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR
P1106	74	41	313202	3.7	3-5	4	02	0.9	0.4
P1219	75	67	300246	4.5	3-5	4	02	0.9	1.0
P1227	75	64	300590	3.8	3-5	5	01	0.9	1.0
P1229	75	64	300592	3.6	3-5	3	00	0.9	0.0
P1249	74	49	306361	3.4	1-5	5	02	0.9	0.6
P1251	74	49	307603	3.4	3-5	5	02	0.9	0.6
P1254	74	49	311263	3.4	3-5	5	04	0.9	1.3
P1258	73	22	900150	3.4	3-5	5	09	0.9	3.0
P1286	74	50	900044	4.0	3-5	4	02	0.9	0.6
P1288	74	50	288151	4.0	3-5	4	03	0.9	1.0
P1292	74	50	290617	4.2	3-5	5	02	0.9	0.6
P1300	74	52	900146	3.6	3-5	3	02	0.9	1.0
P1305	74	52	268859	3.6	3-5	3	01	0.9	0.5
P1315	74	52	295258	3.6	3-5	3	01	0.9	0.5
P1338	74	54	145051	4.0	3-5	3	05	0.9	1.6
P1381	75	61	230197	2.7	2-3	4	01	0.9	1.0
P1413	75	62	262123	3.6	3-5	5	02	0.9	1.0
P1421	75	62	268517	3.6	3-5	5	05	0.9	2.5
P1439	73	22	900153	3.5	3-5	3	01	0.9	0.3
P1444	74	46	900068	3.4	3-5	5	02	0.9	0.0
P1446	74	46	900069	3.4	3-5	5	05	0.9	0.0
P1448	74	46	900072	3.5	3-5	4	00	0.9	0.0
P1449	74	46	900047	3.4	3-5	5	02	0.9	0.0
P1451	74	46	900049	3.4	3-5	5	01	0.9	0.0
P1457	74	47	288161	3.2	3-4	4	03	0.9	1.5
P2373	74	38	900004	3.0	3-3	3	04	0.9	0.4
P2402	73	09	900101	3.8	2-5	5	05	0.9	0.8

Table 3 (Continued)

O.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR
P2403	73	09	900102	3.8	3-5	5	02	0.9	0.3
P2421	73	09	350680	4.0	3-5	5	04	0.9	0.6
P0004	73	24	900077	3.0	3-3	5	05	1.0	1.0
P0011	73	28	900079	3.8	3-5	5	07	1.0	0.8
P0012	73	06	900009	3.0	3-3	5	03	1.0	0.6
P0015	73	24	161312	3.0	3-3	5	08	1.0	1.6
P0021	73	26	900080	3.0	3-3	5	08	1.0	4.0
P0026	73	24	229658	3.0	3-3	4	12	1.0	2.4
P0027	73	28	230328	3.8	3-5	5	05	1.0	0.6
P0028	73	26	234375	3.0	3-3	5	05	1.0	2.5
P0034	73	24	242101	3.0	3-3	5	14	1.0	2.8
P0038	73	26	219824	3.0	3-3	5	04	1.0	2.0
P0040	73	21	234420	3.0	3-3	5	06	1.0	2.0
P0061	73	24	900084	3.0	3-3	5	09	1.0	1.8
P0080	73	24	900087	3.0	3-3	5	09	1.0	1.8
P0083	73	15	900074	3.0	3-3	4	02	1.0	0.7
P0086	73	25	900089	3.0	3-3	5	05	1.0	1.3
P0096	73	26	900092	3.0	3-3	5	05	1.0	2.5
P0105	73	25	900093	3.0	3-3	3	04	1.0	1.0
P0106	73	28	121070	3.8	3-5	5	05	1.0	0.6
P0148	73	15	161868	3.0	3-3	5	04	1.0	1.3
P0154	73	30	162541	3.2	2-5	4	07	1.0	1.8
P0155	73	30	162522	3.0	3-3	4	08	1.0	2.0
P0159	73	30	162421	3.2	2-5	5	05	1.0	1.3
P0196	73	32	900109	3.8	3-5	5	08	1.0	1.3
P0200	73	36	900111	4.0	3-5	5	02	1.0	1.0
P0202	73	32	900112	3.8	3-5	5	08	1.0	1.3

Table 3 (Continued)

O.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR
P0266	73	34	900120	4.2	3-5	5	07	1.0	0.7
P0288	73	33	900121	3.8	3-5	5	15	1.0	1.9
P0291	73	06	900008	3.0	3-3	5	02	1.0	0.5
P0293	73	35	259591	4.4	3-5	5	08	1.0	2.7
P0300	73	34	259585	4.4	3-5	5	07	1.0	0.6
P0306	73	34	259536	4.0	3-5	5	10	1.0	1.0
P0308	73	34	259775	4.2	3-5	5	10	1.0	1.0
P0310	73	30	259800	3.0	3-3	5	08	1.0	2.0
P0311	73	36	259594	4.0	3-5	4	02	1.0	1.0
P0314	73	34	259675	4.0	3-5	5	06	1.0	0.6
P0316	73	33	259650	3.8	3-5	5	10	1.0	1.3
P0319	73	35	259742	4.6	3-5	5	06	1.0	2.0
P0324	73	36	259597	5.0	5-5	5	03	1.0	1.5
P0333	73	33	264159	3.7	3-4	4	06	1.0	0.8
P0340	73	34	268516	4.2	3-5	5	12	1.0	1.2
P0341	73	36	268545	3.8	3-5	5	11	1.0	5.5
P0343	73	34	268573	4.0	3-5	5	06	1.0	0.6
P0348	73	34	268598	4.2	3-5	5	09	1.0	0.9
P0365	73	10	268635	5.0	3-5	5	10	1.0	0.1
P0377	74	54	268654	4.2	3-5	5	04	1.0	1.3
P0378	74	54	268654	4.3	3-5	3	06	1.0	2.0
P0379	74	54	268654	4.5	3-5	4	04	1.0	1.3
P0385	74	54	268684	4.4	3-5	5	06	1.0	2.0
P0396	74	54	268701	4.2	3-5	4	07	1.0	2.3
P0411	74	55	268724	4.6	3-5	4	04	1.0	4.0
P0432	74	54	268787	5.0	5-5	3	01	1.0	1.0
P0444	74	55	268822	4.6	3-5	5	03	1.0	3.0

Table 3 (Continued)

O.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR
P0450	74	55	268828	5.0	5-5	4	01	1.0	1.0
P0452	74	55	268828	5.0	5-5	5	04	1.0	4.0
P0466	74	56	271021	3.6	3-5	3	03	1.0	1.0
P0472	74	56	261997	3.6	3-5	3	01	1.0	0.3
P0475	75	58	900110	5.0	5-5	3	01	1.0	0.6
P0483	75	58	262020	4.8	3-5	5	04	1.0	1.0
P0485	75	57	262105	4.0	3-5	3	03	1.0	0.7
P0497	75	57	262051	4.0	3-5	5	03	1.0	1.2
P0503	75	58	262075	5.0	5-5	4	02	1.0	0.8
P0505	75	58	262080	5.0	5-5	4	01	1.0	0.8
P0508	73	15	261895	3.0	3-3	3	04	1.0	1.3
P0509	75	59	261932	4.5	3-5	4	01	1.0	0.5
P0510	75	58	262073	4.8	4-5	5	02	1.0	1.0
P0516	73	17	261940	3.0	3-3	4	04	1.0	0.7
P0518	75	59	261952	4.5	3-5	4	02	1.0	1.0
P0532	75	58	262001	5.0	5-5	4	03	1.0	0.8
P0531	75	59	261995	4.5	3-5	4	02	1.0	1.0
P0538	75	58	262059	5.0	5-5	3	02	1.0	0.6
P0557	73	11	247378	3.0	3-5	5	06	1.0	1.0
P0563	74	38	240579	3.4	3-5	5	11	1.0	1.2
P0567	74	38	268601	3.4	3-5	5	14	1.0	1.5
P0579	73	39	268628	3.6	3-5	5	02	1.0	0.6
P0597	74	48	268665	3.8	3-5	5	03	1.0	3.0
P0598	73	16	268666	2.6	1-3	4	00	1.0	0.0
P0611	74	48	268679	3.6	3-5	3	01	1.0	1.0
P0623	74	48	268702	3.8	3-5	5	03	1.0	3.0
P0626	73	12	268704	3.4	3-4	5	03	1.0	0.8

Table 3 (Continued)

O.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR
P0646	73	20	268723	3.0	3-3	5	02	1.0	0.5
P0653	73	12	268730	3.4	3-4	5	05	1.0	1.3
P0666	73	12	268743	3.4	3-5	5	05	1.0	1.3
P0674	73	18	268751	3.4	3-5	5	06	1.0	0.9
P0735	73	27	268817	3.4	3-5	5	05	1.0	0.7
P0759	73	19	270789	3.0	3-3	3	08	1.0	2.7
P0841	73	20	268622	3.0	3-3	4	04	1.0	1.0
P0844	73	20	270791	3.0	2-4	5	07	1.0	1.8
P0847	73	19	268643	3.0	3-3	5	02	1.0	0.7
P0856	73	16	268658	2.8	1-3	4	00	1.0	0.0
P0857	73	20	268659	3.0	3-3	3	03	1.0	0.8
P0858	73	15	268660	3.0	1-5	5	02	1.0	0.7
P0859	73	16	268679	2.6	1-3	5	00	1.0	0.0
P0864	73	27	268688	3.4	3-5	5	08	1.0	1.1
P0866	73	19	268691	3.0	3-3	4	03	1.0	1.0
P0883	73	21	270786	3.0	3-5	5	07	1.0	2.3
P0894	73	29	259754	3.0	3-3	5	06	1.0	1.5
P0895	73	20	259756	3.0	3-3	4	03	1.0	0.8
P0913	73	19	240560	3.0	3-3	4	02	1.0	0.7
P0951	73	20	290607	3.0	3-3	3	01	1.0	0.3
P0954	73	21	290536	3.0	3-3	5	06	1.0	2.0
P0955	73	21	900140	3.0	3-3	5	04	1.0	1.3
P1048	74	41	313135	4.2	3-5	5	03	1.0	0.6
P1055	74	44	313142	3.8	3-5	5	04	1.0	1.3
P1056	74	42	313143	3.2	3-4	4	01	1.0	0.5
P1057	74	44	313143	3.8	3-5	5	04	1.0	1.3
P1058	74	47	313145	3.5	3-5	4	01	1.0	0.5

Table 3 (Continued)

O.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR
P1059	74	41	313145	4.0	3-5	4	00	1.0	0.0
P1065	74	41	313157	4.0	3-5	4	02	1.0	0.4
P1073	74	43	313169	3.6	3-5	5	02	1.0	1.0
P1076	74	44	313171	3.8	3-5	5	07	1.0	2.3
P1078	74	44	313172	3.8	3-5	5	05	1.0	1.6
P1107	74	40	313203	3.6	3-5	5	02	1.0	1.0
P1110	74	40	314048	3.6	3-5	5	02	1.0	1.0
P1120	74	40	315612	3.6	3-5	5	06	1.0	3.0
P1123	74	41	314818	4.0	3-5	4	01	1.0	0.2
P1127	74	41	311266	4.0	2-5	5	04	1.0	0.8
P1176	75	66	298837	3.2	3-5	4	04	1.0	1.0
P1192	75	66	298853	3.0	3-3	5	00	1.0	0.0
P1198	75	66	298861	3.0	3-3	3	01	1.0	0.2
P1199	75	66	298862	3.0	3-3	3	01	1.0	0.2
P1223	75	65	300586	3.0	3-5	5	01	1.0	0.7
P1236	75	64	306219	4.0	3-5	3	00	1.0	0.0
P1255	74	49	311264	3.8	3-5	5	02	1.0	0.6
P1314	74	52	295243	3.8	3-5	5	01	1.0	0.5
P1316	74	52	295717	3.8	3-5	5	03	1.0	1.5
P1324	74	53	297395	3.6	3-5	3	01	1.0	0.3
P1330	74	53	119922	3.5	3-5	3	03	1.0	1.0
P1332	74	53	121519	3.7	3-5	3	01	1.0	0.3
P1333	74	53	121520	3.6	3-5	3	03	1.0	1.0
P1348	75	60	152112	3.6	3-5	3	00	1.0	0.0
P1350	75	60	152130	3.7	3-5	4	01	1.0	0.5
P1354	75	60	152143	3.4	3-5	5	02	1.0	1.0
P1356	75	60	153158	3.4	3-5	5	02	1.0	1.0

Table 3 (Continued)

O.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR
P1366	75	60	221060	3.4	3-5	5	01	1.0	0.5
P1376	75	61	229660	3.0	3-3	3	00	1.0	0.0
P1377	75	61	230192	3.0	3-3	4	00	1.0	0.0
P1379	75	61	230194	3.0	3-3	3	00	1.0	0.0
P1391	75	63	240562	3.4	3-5	5	01	1.0	1.0
P1395	75	63	240581	3.4	3-5	5	02	1.0	2.0
P1399	75	62	248764	4.0	3-5	5	05	1.0	2.5
P1416	75	63	268504	3.4	3-5	5	01	1.0	1.0
P1419	75	63	268508	3.6	3-4	5	02	1.0	2.0
P1423	74	45	268572	3.8	3-5	5	04	1.0	0.0
P1426	74	45	269691	3.7	3-5	4	01	1.0	0.0
P1427	74	45	269693	3.6	3-4	5	04	1.0	0.0
P1434	74	45	271023	3.6	3-5	3	01	1.0	0.0
P1440	74	45	900064	3.8	3-5	5	02	1.0	0.0
P1442	74	45	900063	3.6	3-4	3	02	1.0	0.0
P1445	74	46	900065	3.6	3-5	3	03	1.0	0.0
P1456	74	47	288138	3.4	3-5	5	00	1.0	0.0
P1458	74	47	288167	3.6	3-5	3	00	1.0	0.0
P1464	74	47	295197	3.4	3-5	5	02	1.0	1.0
P1465	74	47	295198	3.4	3-5	5	01	1.0	0.5
P1467	74	47	295202	3.5	3-5	4	04	1.0	2.0
P1885	75	66	262275	3.0	3-3	3	01	1.0	0.2
P0003	73	26	900076	3.4	3-5	5	08	1.1	4.0
P0023	73	26	226249	3.2	3-4	5	07	1.1	3.5
P0030	73	24	234416	3.2	3-4	5	06	1.1	1.2
P0032	73	26	234422	3.2	3-4	5	07	1.1	3.5
P0109	73	28	121070	4.2	3-5	5	09	1.1	1.0

Table 3 (Continued)

O.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR
P0144	73	08	234417	3.6	3-5	5	03	1.1	0.4
P0150	73	30	185632	3.4	3-5	5	03	1.1	0.6
P0156	73	30	163147	3.4	3-5	5	10	1.1	2.5
P0174	73	34	121298	4.6	3-5	5	08	1.1	0.8
P0175	73	34	223684	4.6	4-5	5	08	1.1	0.8
P0185	73	17	900073	3.2	3-4	5	05	1.1	0.8
P0191	73	32	900097	4.3	3-5	3	06	1.1	1.0
P0193	73	32	900098	4.3	3-5	3	04	1.1	0.7
P0204	73	06	900012	3.2	2-5	5	01	1.1	0.3
P0264	73	34	900119	4.6	3-5	5	04	1.1	0.4
P0294	73	36	259805	4.4	3-5	5	06	1.1	3.0
P0304	73	36	259814	4.5	3-5	4	04	1.1	2.0
P0307	73	30	162421	3.4	3-5	5	06	1.1	1.5
P0309	73	34	259826	4.8	4-5	5	02	1.1	0.2
P0334	73	30	268767	3.4	3-5	5	11	1.1	2.8
P0393	73	07	268692	3.8	3-5	5	08	1.1	1.3
P0433	73	07	268789	3.4	3-5	5	03	1.1	0.5
P0464	74	56	270838	4.2	3-5	5	08	1.1	2.6
P0467	73	08	271022	3.6	3-5	5	01	1.1	0.1
P0470	73	11	261989	3.8	3-5	5	11	1.1	1.5
P0471	74	56	261997	4.0	3-5	5	01	1.1	0.3
P0473	73	11	900021	3.6	3-5	5	12	1.1	1.7
P0480	74	56	262016	4.2	3-5	5	06	1.1	2.0
P0484	73	11	262022	3.5	3-5	5	03	1.1	0.4
P0495	73	11	262046	3.6	3-5	5	05	1.1	0.7
P0496	73	19	262050	3.2	3-4	5	02	1.1	0.7
P0507	75	59	261897	5.0	5-5	5	03	1.1	1.5

Table 3 (Continued)

O.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR
P0515	75	59	274203	5.0	5-5	3	00	1.1	0.0
P0522	75	59	261971	5.0	5-5	4	03	1.1	1.5
P0525	75	59	261976	5.0	5-5	3	03	1.1	1.5
P0527	75	59	261995	5.0	5-5	5	07	1.1	3.5
P0534	75	60	262025	3.8	3-5	5	01	1.1	0.5
P0546	73	37	248757	3.8	3-5	5	02	1.1	0.7
P0551	74	38	248762	3.8	3-3	5	06	1.1	0.7
P0554	73	39	248767	3.8	3-5	5	04	1.1	1.3
P0558	73	37	240546	3.8	3-5	5	05	1.1	1.7
P0559	73	39	240555	4.0	3-5	4	02	1.1	0.6
P0566	73	39	268600	3.8	3-5	5	03	1.1	1.0
P0569	73	39	268613	4.0	3-5	4	04	1.1	1.3
P0570	73	37	268614	3.8	3-5	5	05	1.1	1.7
P0572	73	39	268618	3.8	3-5	5	03	1.1	1.0
P0576	73	39	268625	3.8	3-5	5	04	1.1	1.3
P0577	74	38	268626	3.7	2-5	4	05	1.1	0.5
P0594	73	12	268654	3.8	3-5	5	08	1.1	2.0
P0632	73	12	268711	3.6	3-5	5	05	1.1	1.3
P0660	73	12	268738	3.6	3-5	5	08	1.1	2.0
P0672	73	16	268748	3.0	1-5	5	00	1.1	0.0
P0690	73	12	268773	3.6	3-5	5	04	1.1	1.0
P0691	73	22	268773	4.2	3-5	4	04	1.1	1.3
P0739	73	23	268821	2.5	1-3	4	01	1.1	1.0
P0784	73	17	259771	3.4	3-5	5	02	1.1	0.3
P0837	73	15	268616	3.3	3-4	3	02	1.1	0.7
P0846	73	17	268640	3.4	3-5	5	14	1.1	2.3
P0852	73	17	268652	3.2	3-4	4	03	1.1	0.5

Table 3 (Continued)

O.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR
P0896	73	15	259775	3.4	3-4	5	08	1.1	2.7
P0897	73	20	268806	3.4	3-5	5	03	1.1	0.8
P1062	74	44	313150	4.2	3-5	5	10	1.1	3.3
P1071	74	43	313162	3.8	3-5	5	06	1.1	3.0
P1074	74	42	313170	3.5	3-5	4	02	1.1	1.0
P1088	74	44	313183	4.5	3-5	4	06	1.1	2.0
P1103	74	42	313200	3.4	3-5	5	05	1.1	2.5
P1108	74	40	294647	3.8	3-5	5	08	1.1	4.0
P1111	74	40	314817	4.0	3-5	3	04	1.1	2.0
P1115	74	41	314897	4.5	3-5	4	03	1.1	0.6
P1116	74	43	314980	3.8	3-5	5	05	1.1	2.5
P1128	74	43	275497	3.8	3-5	5	13	1.1	6.5
P1135	74	43	288214	3.8	3-5	5	04	1.1	2.0
P1170	74	43	298830	4.0	3-5	5	08	1.1	4.0
P1173	75	66	298834	3.3	3-4	3	01	1.1	0.2
P1210	75	65	299467	3.4	3-5	5	01	1.1	1.2
P1212	75	65	299469	3.4	3-5	5	04	1.1	1.2
P1222	75	65	300247	3.4	3-5	5	00	1.1	1.2
P1224	75	65	300587	3.4	3-5	5	03	1.1	1.0
P1247	74	49	306359	4.2	3-5	5	03	1.1	1.0
P1248	74	49	306360	4.0	3-5	4	02	1.1	0.6
P1308	74	52	288161	4.2	3-5	4	02	1.1	1.0
P1310	74	52	295213	4.4	2-5	5	01	1.1	0.5
P1321	74	53	295754	4.0	3-5	4	00	1.1	0.0
P1331	74	53	121493	3.8	3-5	4	02	1.1	0.6
P1343	74	56	149646	4.0	3-5	4	03	1.1	1.0
P1346	74	56	152107	4.0	3-5	4	01	1.1	0.3

Table 3 (Continued)

O.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR
P1358	75	60	153171	3.8	3-5	5	01	1.1	0.5
P1378	75	61	230193	3.5	3-5	4	00	1.1	0.0
P1394	75	62	240580	4.5	3-5	4	02	1.1	1.0
P1396	75	62	241631	4.3	3-5	3	02	1.1	1.0
P1417	75	62	268507	4.2	3-5	5	02	1.1	1.0
P1420	75	62	268509	4.2	3-5	5	04	1.1	2.0
P1422	74	45	268518	4.2	3-5	5	08	1.1	0.0
P1431	74	45	269716	4.2	3-5	5	03	1.1	0.0
P1432	74	45	269717	4.0	3-5	4	05	1.1	0.0
P1460	74	46	288179	4.0	2-5	5	03	1.1	0.0
P1615	74	48	900147	4.0	2-5	5	05	1.1	5.0
P1755	73	06	900007	2.4	1-3	5	00	1.1	0.3
P0014	73	08	162524	3.8	3-5	5	04	1.2	0.6
P0047	73	29	237509	3.6	3-5	3	09	1.2	2.3
P0074	73	23	900086	3.5	3-5	4	00	1.2	0.0
P0090	73	25	900091	3.6	3-5	5	06	1.2	1.5
P0152	73	30	162957	3.8	3-5	5	09	1.2	2.6
P0183	73	20	234418	3.7	3-5	4	04	1.2	1.0
P0186	73	32	900096	4.4	3-5	5	05	1.2	0.8
P0216	73	34	900113	5.0	5-5	5	05	1.2	0.5
P0289	73	36	900122	4.6	3-5	5	06	1.2	3.0
P0312	73	36	269663	4.6	4-5	5	09	1.2	4.5
P0315	73	30	259772	3.8	3-5	5	11	1.2	2.8
P0331	73	30	161317	3.7	3-5	4	05	1.2	1.3
P0342	73	34	268564	5.0	5-5	4	08	1.2	0.8
P0400	73	07	268706	3.0	3-3	5	05	1.2	0.8
P0461	73	08	270804	3.8	3-5	5	07	1.2	1.0

Table 3 (Continued)

O.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR
P0478	74	56	262088	4.5	3-5	4	04	1.2	1.3
P0479	74	56	900023	4.6	3-5	5	03	1.2	1.0
P0486	75	57	900135	4.6	3-5	3	03	1.2	0.7
P0488	75	57	262034	4.6	4-5	3	03	1.2	0.7
P0512	75	60	261935	4.0	3-5	5	03	1.2	1.5
P0528	73	11	261985	4.0	3-5	5	05	1.2	0.7
P0541	73	37	262104	4.2	3-5	5	03	1.2	1.0
P0547	73	37	248758	4.2	3-5	5	04	1.2	1.3
P0550	73	37	248761	4.4	3-5	5	04	1.2	1.3
P0555	73	39	248768	4.2	3-5	5	04	1.2	1.3
P0560	73	39	240561	4.2	3-5	5	08	1.2	2.6
P0561	73	39	240572	4.2	3-5	5	02	1.2	0.6
P0564	73	39	268592	4.2	3-5	5	04	1.2	1.3
P0571	73	37	268615	4.2	3-5	5	05	1.2	1.7
P0580	73	37	268629	4.2	3-5	5	00	1.2	0.0
P0587	73	37	268637	4.2	3-5	5	03	1.2	1.0
P0588	73	37	268638	4.2	3-5	4	05	1.2	1.7
P0589	74	38	268641	3.8	3-5	5	10	1.2	1.1
P0822	73	17	248762	3.6	3-5	5	03	1.2	0.5
P0880	73	16	268813	3.2	2-5	5	00	1.2	0.0
P0965	73	29	299467	3.6	3-5	3	04	1.2	1.0
P0998	73	21	900142	3.8	3-5	4	02	1.2	0.7
P1046	74	43	313133	4.2	3-5	5	02	1.2	1.0
P1082	74	43	313177	4.4	3-5	5	01	1.2	0.5
P1094	74	42	313191	3.8	3-5	5	02	1.2	1.0
P1099	74	40	313195	4.2	3-5	5	05	1.2	2.5
P1101	74	42	313199	3.8	3-5	5	01	1.2	0.5

Table 3 (Continued)

O.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR
P1102	74	42	313200	3.8	3-5	5	02	1.2	1.0
P1105	74	40	313201	4.2	3-5	5	06	1.2	3.0
P1133	74	43	280690	4.2	3-5	5	02	1.2	1.0
P1209	75	65	298877	3.8	3-5	5	01	1.2	1.2
P1243	74	49	306228	4.5	3-5	4	02	1.2	0.6
P1320	74	53	295751	4.2	3-5	5	00	1.2	0.0
P1347	74	56	152108	4.6	3-5	5	03	1.2	1.0
P1349	75	60	152137	4.2	3-5	4	02	1.2	1.0
P1360	75	60	162534	4.2	3-5	5	02	1.2	1.0
P1372	75	61	226251	3.6	3-5	3	03	1.2	3.0
P1383	75	61	230199	3.8	3-5	5	02	1.2	2.0
P1386	75	61	234376	3.6	3-5	3	00	1.2	0.0
P1408	75	62	259601	4.6	3-5	5	02	1.2	1.0
P1433	74	45	269723	4.5	3-5	4	05	1.2	0.0
P1437	74	45	900062	4.5	3-5	4	05	1.2	0.0
P0035	73	25	242100	3.8	3-5	5	12	1.3	3.0
P0062	73	25	900085	4.0	3-5	5	09	1.3	2.3
P0147	73	30	162403	4.3	3-5	3	06	1.3	1.5
P0188	73	36	900107	5.0	5-5	4	01	1.3	0.5
P0190	73	08	900010	4.0	2-5	5	04	1.3	0.6
P0262	73	36	900118	5.0	5-5	3	02	1.3	1.0
P0296	73	36	259648	5.0	5-5	3	03	1.3	1.5
P0320	73	36	259670	5.0	5-5	4	04	1.3	2.0
P0350	73	36	268598	5.0	5-5	5	02	1.3	1.0
P0403	73	16	268708	3.4	3-5	5	00	1.3	0.0
P0477	74	56	262014	5.0	5-5	3	03	1.3	1.0
P0489	75	57	262036	5.0	5-5	3	02	1.3	0.7

Table 3 (Continued)

O.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR
P0490	75	57	262037	5.0	5-5	5	02	1.3	1.2
P0491	75	57	262038	5.0	5-5	4	03	1.3	1.0
P0492	75	57	262040	5.0	5-5	3	01	1.3	0.7
P0504	74	56	262076	4.8	4-5	5	07	1.3	2.3
P0573	73	39	268620	4.6	3-5	5	05	1.3	1.6
P0582	73	39	268631	4.6	3-5	5	05	1.3	1.6
P0583	73	37	268633	4.5	3-5	4	08	1.3	2.7
P0585	73	37	268635	4.5	3-5	4	02	1.3	0.7
P0854	73	17	268654	4.0	3-5	5	05	1.3	0.8
P0899	73	20	259835	3.8	3-3	5	03	1.3	0.8
P0969	73	16	299471	3.4	3-4	5	00	1.3	0.0
P1050	74	40	313137	4.6	3-5	5	09	1.3	4.5
P1061	74	43	313149	4.7	4-5	4	07	1.3	3.5
P1118	74	43	315614	4.6	3-5	5	05	1.3	2.5
P1211	75	65	299468	4.0	3-5	3	02	1.3	1.0
P1213	75	65	299470	4.0	3-5	4	03	1.3	1.0
P1214	75	65	299471	4.0	3-4	3	01	1.3	0.7
P1217	75	65	300242	4.0	3-5	3	01	1.3	1.0
P1246	74	49	306358	5.0	5-5	4	01	1.3	0.3
P1374	75	61	226255	4.0	3-5	3	01	1.3	1.0
P1418	75	62	268507	5.0	5-5	5	03	1.3	1.5
P2398	73	06	268661	3.8	3-5	5	05	1.3	1.3
P0016	73	25	162538	4.3	3-5	3	07	1.4	1.8
P0031	73	25	234418	4.2	3-5	5	08	1.4	2.0
P0085	73	25	900088	4.2	3-5	4	12	1.4	3.0
P0802	73	21	261925	4.2	3-5	4	11	1.4	3.7
P0930	73	20	290607	4.3	3-5	3	02	1.4	0.5

Table 3 (Continued)

O.NO.	YR	EN	PINO	AR	RNG	W	LP	VR	SR
P1043	74	42	313128	4.3	3-5	3	00	1.4	0.0
P1045	74	42	313132	4.2	3-5	5	06	1.4	3.0
P1049	74	40	313136	5.0	5-5	5	10	1.4	5.0
P1092	74	40	313189	5.0	5-5	5	08	1.4	4.0
P1100	74	43	313196	5.0	5-5	5	06	1.4	3.0
P1117	74	43	315615	5.0	5-5	5	02	1.4	1.0
P1351	75	60	152138	5.0	5-5	5	06	1.4	3.0
P1373	75	61	226252	4.2	3-5	4	01	1.4	1.0
P1382	75	61	230198	4.2	3-5	4	00	1.4	0.0
P1436	73	23	900152	4.2	3-5	5	00	1.4	0.0
P0529	73	16	261953	4.0	3-5	4	00	1.5	0.0
P1218	75	66	300243	4.6	4-5	3	03	1.5	0.7
P0129	73	29	240867	5.0	5-5	4	05	1.6	1.3
P1368	75	61	221062	5.0	5-5	5	00	1.6	0.0
P0120	73	24	244973	5.0	5-5	5	05	1.7	1.0
P0975	73	17	196740	5.0	5-5	5	07	1.7	1.1

[a] See page 18 of text for explanation of headings. If a plant did not have a plant introduction number it was given an unofficial one in the 900000 series.

Table 4. Observed values for Comet screened for lesser cornstalk borer in greenhouse experiments in 1973, 1974, and 1975.

Experiment No.	Average Rating	Range	No. of Plants With Webbing	No. of Larvae and Pupae Found
6	3.0	3-3	5	4
7	3.2	3-4	5	6
8	3.2	3-3	5	7
9	4.2	3-5	5	6
10	4.6	3-5	5	11
11	3.4	3-5	5	7
12	3.4	3-5	5	4
13	4.2	3-5	5	4
14	3.4	3-5	5	3
15	3.0	3-3	5	3
16	2.6	1-3	5	0
17	3.0	3-3	5	6
18	3.4	3-5	5	7
19	3.0	3-5	5	3
20	3.0	2-4	5	4
21	3.0	3-3	5	3
22	3.8	3-5	5	3
23	3.0	3-3	5	1
24	3.0	3-3	5	5
25	3.0	3-4	5	4
26	3.0	3-4	5	2
27	3.4	3-5	5	7
28	3.8	3-5	5	9
29	3.0	3-5	5	4
30	3.2	3-4	5	4
31	4.2	3-4	5	4
32	3.8	3-5	5	6
33	3.8	3-5	5	8
34	4.2	3-5	5	10
35	4.6	3-5	5	3
36	4.0	3-5	5	2
37	3.6	3-5	5	3
38	3.4	3-5	5	9
39	3.4	3-5	5	3
40	3.4	3-5	5	2
41	4.0	3-5	4	5
42	3.0	3-3	5	2
43	3.4	3-5	5	2
44	3.8	3-5	5	3
45	3.6	3-5	3	0
46	3.6	3-5	3	0
47	3.4	3-5	5	2
48	3.6	3-5	3	1
49	3.6	3-5	3	3
50	4.3	3-5	3	3

Table 4 (Continued)

Experiment No.	Average Rating	Range	No. of Plants With Webbing	No. of Larvae and Pupae Found
51	4.5	3-5	4	4
52	3.8	3-5	5	2
53	3.4	3-5	5	3
54	4.2	3-5	5	3
55	4.6	3-5	5	1
56	3.6	3-5	5	3
57	3.8	4-5	4	3
58	4.8	3-5	5	2
59	4.2	3-5	5	2
60	3.4	3-5	5	2
61	3.0	3-3	5	1
62	3.8	3-5	5	2
63	3.4	2-5	5	1
64	4.0	3-3	4	1
65	3.0	3-3	4	2
66	3.0	3-3	5	4
67	4.8	4-5	5	2

Table 5. Harvested weight of peanuts for Experiment I at Perkins in 1974 expressed as grams per 30.5cm of planted row.

Entry	Replicate 1		Replicate 2		Replicate 3		Variety Mean	
	Unsprayed	Sprayed[a]	Unsprayed	Sprayed[a]	Unsprayed	Sprayed[a]	Unsprayed	Sprayed[a]
P-22	12.2	24.3	22.4	36.0	10.3	10.4	15.0	23.6
P-112	28.7	31.9	41.7	44.4	54.8	60.4	41.7	45.6
P-215	27.1	32.7	----	----	14.5	17.0	20.8	24.8
P-959	33.1	46.5	59.7	60.6	28.2	32.0	40.3	46.4
P-1259	67.6	72.9	10.1	18.7	46.1	67.5	41.3	53.0
P-2339	----	----	40.7	48.0	38.9	43.2	39.8	45.6
P-2374	36.3	50.0	30.4	40.2	61.4	65.8	42.7	52.0
Comet	42.9	50.3	37.8	42.9	20.2	23.1	33.6	38.8
Mean	35.4	44.1	34.7	41.5	34.3	39.9		

[a] Sprayed with chlorpyrifos.

Table 6. Harvested weight of peanuts for Experiment II at Perkins in 1974 expressed as grams per 30.5cm of planted row.

Entry	Replicate 1		Replicate 2		Replicate 3		Variety Mean	
	Unsprayed	Sprayed[a/]	Unsprayed	Sprayed[a/]	Unsprayed	Sprayed[a/]	Unsprayed	Sprayed[a/]
P-2	----	----	16.2	15.9	17.2	33.7	16.7	24.8
P-25	13.2	20.5	38.4	43.9	26.9	43.6	26.2	36.0
P-46	----	----	30.1	35.7	22.9	35.4	26.5	35.5
P-47	22.9	28.5	41.1	34.8	15.8	46.8	26.6	36.7
P-115	16.5	9.7	26.8	26.4	15.3	22.1	19.5	19.4
P-149	18.6	12.3	28.6	78.3	30.0	43.2	25.7	44.6
P-295	39.4	40.9	14.5	16.2	40.1	53.0	31.3	36.7
P-332	33.9	49.2	35.0	28.3	8.7	26.2	25.9	34.6
P-371	37.1	34.2	7.6	4.4	34.0	59.9	26.2	32.8
P-384	11.5	16.5	18.4	28.1	21.7	38.5	17.2	27.7
P-524	34.4	26.6	34.3	47.3	32.2	44.5	33.6	39.5
P-850	37.7	44.3	41.6	47.7	32.2	46.8	37.2	46.3
P-900	36.8	40.0	47.3	46.7	9.0	9.0	31.0	31.9
P-943	20.3	12.8	25.2	63.7	12.0	25.1	19.2	33.9
Comet	34.5	43.2	34.5	35.2	24.0	45.1	31.0	41.2
Mean	27.4	29.1	29.3	36.8	22.8	38.2	----	----

[a/] Treated with chlorpyrifos.

Table 7. Analysis of variance for yield in Experiment I, conducted at Perkins, Oklahoma in 1974.

Source	df	Mean Squares
Reps	2	26.22
Varieties	7	645.92
Rep X Varieties	14	509.34
Treatment	1	536.91*
Rep X Treatments	2	8.71
Treatment X Variety	7	11.10
Rep X Treatment X Variety	14	13.31

*Significant at the 0.05 level.

Table 8. Analysis of variance for yield in Experiment II, conducted at Perkins, Oklahoma in 1974.

Source	df	Mean Squares
Reps	2	195.59
Varieties	14	226.75
Rep X Varieties	28	306.64
Treatments	1	1629.03
Rep X Treatments	2	312.23
Treatment X Variety	14	33.4
Rep X Treatment X Variety	28	73.25

Table 9. Means of percent plants infested with larvae and pupae and percent plants infested with larvae, pupae, and emerged pupae arranged according to variety, sampling time, and treatments, in Experiment I, conducted at Enos, Oklahoma in 1975.

Variety	Sampling Time	% Plants With Larvae and Pupae		% Plants With Larvae, Pupae and Empty Pupa Cases	
		Unsprayed	Sprayed[a]	Unsprayed	Sprayed[a]
Florigiant	1	37	7	57	10
	2	63	7	67	17
	3	57	13	60	13
	avg.	52	9	61	13
Florunner	1	27	0	33	3
	2	43	3	57	7
	3	77	20	77	20
	avg.	49	8	56	10
Comet	1	20	0	37	17
	2	30	0	60	20
	3	43	6	57	7
	avg.	31	2	51	14
Dixie Spanish	1	20	3	30	7
	2	17	3	27	13
	3	37	0	40	3
	avg.	24	2	32	8

[a] Sprayed with chlorpyrifos.

Table 10. Analyses of variance for plants infested with larvae and pupae, larvae, pupae and emerged pupae, percent damaged pods, percent damaged pegs, and percent damaged pods and pegs for Experiment I, conducted at Enos, Oklahoma in 1975.

Source	df	Mean Squares				
		INFLP[a/]	INFTOT[b/]	PCTDPD[c/]	PCTDPG[d/]	PCTDTOT[e/]
Rep	2	50	57	215	3183*	839
Variety	3	130**	99	257	1935	1656*
Rep X Variety	6	11	22	106	573	185
Treatment	1	2067**	2683**	3756*	20357	7545
Rep X Treatment	2	3	2	85	2163	452
Variety X Treatment	3	45	50	234	180	386
Rep X Variety X Treatment	6	12	25	131	1264	343
Row(Rep X Variety X Treatment)	24	20	17	82	360	193
Time	2	187**	77	2969*	26796*	7385*
Rep X Time	4	9	24	259	2187	685
Variety X Time	6	30	32	386*	1121	564
Rep X Variety X Time	12	23	36	77	599	241
Treatment X Time	2	60	45	1500*	8557*	2510*
Rep X Treatment X Time	4	11	15	141	536	152
Variety X Treatment X Time	6	11	13	280	184	250
Rep X Variety X Treatment X Time	12	19	35	198	630	211
Time X Row(Rep X Variety X Treatment)	48	12	18	82	593	178

*Significant at the 0.05 level.

**Significant at the 0.01 level.

[a/] INFLP=plants infested with larvae and pupae; [b/] INFTOT=plants infested with larvae, pupae, and emerged pupae; [c/] PCTDPD=percent pod damage; [d/] PCTPPG=percent peg damage; [e/] PCTDTOT=percent pod and peg damage.

Table 11. Means of percent damaged pods, percent damaged pegs, and percent damaged pods and pegs arranged according to varieties, sampling time, and treatment in Experiment I, conducted at Enos, Oklahoma in 1975.

Variety	Sampling Time	Percent Damaged Pods		Percent Damaged Pegs		Percent Damaged Pods and Pegs	
		Unsprayed	Sprayed[a]	Unsprayed	Sprayed[a]	Unsprayed	Sprayed[a]
Florigiant	1	0.0	0.0	0.4	0.0	0.4	0.0
	2	5.5	1.5	22.9	22.3	12.2	9.9
	3	18.3	2.4	34.2	9.4	25.2	5.9
	avg.	7.9	1.3	19.2	10.5	12.7	5.3
Florunner	1	0.0	0.0	1.5	0.0	1.5	0.0
	2	3.4	0.5	21.0	7.9	13.3	4.6
	3	18.9	2.5	39.0	14.0	27.6	7.4
	avg.	7.4	1.0	20.7	7.3	14.1	3.9
Comet	1	0.0	0.0	0.7	0.0	0.5	0.0
	2	5.5	1.9	11.2	6.5	6.5	3.0
	3	5.2	1.0	34.5	8.7	19.4	2.3
	avg.	3.6	1.0	15.2	5.0	5.5	1.8
Dixie Spanish	1	0.0	0.0	1.6	0.0	1.3	0.0
	2	5.9	1.2	11.3	2.6	6.6	1.9
	3	5.5	2.3	25.7	5.8	10.7	2.9
	avg.	3.8	1.2	12.8	2.8	6.2	1.6

[a] Sprayed with chlorpyrifos.

Table 12. Analysis of variance for yield in Experiment I, conducted at Enos, Oklahoma in 1975.

Source	df	Mean Squares
Reps	2	335.68
Varieties	3	442.24
Rep X Varieties	6	191.99
Treatment	1	633.45*
Rep X Treatments	2	18.87
Treament X Variety	3	23.37
Rep X Treatment X Variety	6	35.18

*Significant at the 0.05 level.

Table 13. Yield in grams per 30.5cm in treated and untreated plots for Experiment I, conducted at Enos, Oklahoma in 1975.

Variety	Unsprayed				Sprayed[a]				Mean % Difference
	Rep.1	Rep.2	Rep.3	Mean	Rep.1	Rep.2	Rep.3	Mean	
Florigiant	25.8	71.7	54.9	50.8	49.4	82.1	66.7	66.0	26.7
Florunner	66.2	64.4	49.9	60.1	68.1	68.1	75.3	70.5	13.9
Comet	46.7	42.2	45.5	44.8	51.7	55.1	57.2	54.0	18.0
Dixie Spanish	37.2	53.5	39.9	43.5	45.4	56.7	45.4	49.1	11.8

[a] Sprayed with chlorpyrifos.

Table 14. Means of percent plants infested with larvae and pupae, and percent plants infested with larvae, pupae and emerged pupae arranged according to entry, sampling time, and treatments in Experiment II, conducted at Enos, Oklahoma in 1975.

Entry	Sampling Time	% Plants With Larvae and Pupae		% Plants With Larvae, Pupae and Empty Pupa Cases	
		Unsprayed	Sprayed[a/]	Unsprayed	Sprayed[a/]
P-215	1	27	13	33	13
	2	60	0	73	0
	3	73	47	80	47
	avg.	53	20	62	20
P-900	1	13	20	33	20
	2	20	0	53	7
	3	47	13	60	13
	avg.	27	11	49	13
P-959	1	27	7	33	7
	2	20	0	27	7
	3	47	33	47	33
	avg.	31	13	36	16
P-1273	1	27	20	27	20
	2	20	0	27	0
	3	60	0	60	0
	avg.	36	7	38	7
P-1291	1	60	0	60	7
	2	33	7	40	7
	3	67	0	73	0
	avg.	53	2	58	4
P-1436	1	27	27	73	27
(Dixie	2	7	13	13	20
Spanish)	3	33	20	40	20
	avg.	22	20	42	22
P-1443	1	20	7	40	7
(Comet)	2	27	0	47	13
	3	33	0	47	0
	avg.	27	2	44	7
P-2339	1	33	0	40	7
(Florunner)	2	40	0	47	0
	3	67	53	67	53
	avg.	47	18	51	20
P-2374	1	40	7	40	7
	2	40	0	40	0
	3	40	13	47	13
	avg.	40	7	42	7
Florigiant	1	27	7	27	13
	2	33	0	47	7
	3	80	33	80	33
	avg.	47	13	51	18

[a/] Sprayed with chlorpyrifos.

Table 15. Means of percent damaged pods, percent damaged pegs, and percent damaged pods and pegs arranged according to entry, sampling time, and treatment in Experiment II, conducted at Enos, Oklahoma in 1975.

Entry	Sampling Time	Percent Damaged Pods		Percent Damaged Pegs		Percent Damaged Pods and Pegs	
		Unsprayed	Sprayed[a/]	Unsprayed	Sprayed[a/]	Unsprayed	Sprayed[a/]
P-215	1	6.7	4.2	6.6	11.9	6.0	5.1
	2	5.1	0.7	39.4	4.2	37.0	3.0
	3	33.2	14.4	4.9	16.8	2.6	16.2
	avg.	15.7	6.5	19.7	8.6	16.0	7.3
P-900	1	4.3	18.4	9.0	7.0	6.1	16.4
	2	11.4	0.0	37.0	0.8	15.8	0.6
	3	4.7	1.8	0.0	9.9	4.2	4.1
	avg.	11.4	2.2	17.7	3.5	12.8	3.0
P-959	1	0.0	26.0	11.1	9.1	10.0	14.6
	2	22.8	2.2	52.8	0.0	32.9	0.5
	3	5.6	17.8	4.1	11.3	4.3	15.1
	avg.	16.2	8.5	24.3	5.1	19.2	6.6
P-1273	1	3.3	1.3	20.0	1.0	21.1	1.1
	2	10.7	0.0	38.0	0.0	18.2	0.0
	3	0.0	2.0	1.7	12.6	0.7	5.9
	avg.	5.1	0.5	19.7	4.8	13.5	2.2
P-1291	1	22.7	17.8	44.9	13.0	33.4	15.8
	2	27.8	2.2	54.9	0.8	35.5	1.5
	3	2.8	2.4	7.4	8.3	3.8	3.8
	avg.	22.8	2.5	37.6	5.5	28.6	3.0

Table 15 (Continued)

Entry	Sampling Time	Percent Damaged Pods		Percent Damaged Pegs		Percent Damaged Pods and Pegs	
		Unsprayed	Sprayed[a]	Unsprayed	Sprayed[a]	Unsprayed	Sprayed[a]
P-1436	1	4.0	1.8	7.9	11.5	6.3	2.8
(Dixie	2	12.1	1.2	58.9	5.5	19.8	4.0
Spanish)	3	6.1	6.5	5.6	0.4	5.4	5.2
	avg.	6.0	4.6	26.1	3.8	9.6	4.7
P-1443	1	2.2	5.2	14.7	0.0	10.8	4.5
(Comet)	2	9.0	0.0	51.7	0.0	15.4	0.0
	3	2.6	1.0	0.0	4.7	2.2	1.5
	avg.	5.5	1.2	22.1	1.6	10.2	1.2
P-2339	1	6.7	6.3	27.7	1.3	27.5	4.0
(Florunner)	2	29.2	0.0	29.1	0.0	26.8	0.0
	3	1.0	8.9	3.9	8.8	2.6	8.4
	avg.	14.1	3.3	19.5	4.2	19.4	3.7
P-2374	1	0.0	16.5	3.4	3.0	1.4	7.7
	2	16.3	0.0	53.1	0.0	26.3	0.0
	3	0.0	5.5	0.0	5.5	0.0	5.8
	avg.	10.9	1.9	19.9	1.8	11.8	1.9
Florigiant	1	6.7	35.0	15.7	15.1	16.2	27.6
	2	25.7	3.3	28.4	2.1	27.9	2.2
	3	13.3	9.9	10.5	6.1	10.3	8.1
	avg.	22.5	8.8	19.7	6.2	23.9	7.0

[a] Sprayed with chlorpyrifos.

Table 16. Analyses of variance for plants infested with larvae and pupae, larvae, pupae and emerged pupae, percent damaged pods, percent damaged pegs, percent damaged pods and pegs for Experiment II, conducted at Enos, Oklahoma in 1975.

Source	df	Mean Squares				
		INFLP[a]	INFTOT[b]	PCTDPD[c]	PCTDPG[d]	PCTDTOT[e]
Reps	2	448	803	477	3007**	891*
Variety	9	410*	311	1658**	914*	1205**
Rep X Variety	18	192	268	206	308	180
Treatment	1	16268**	26010**	18199**	73272**	34737**
Rep X Treatment	2	254	203	134	1012	123
Variety X Treatment	9	386	217	637	826	752*
Rep X Variety X Treatment	18	140	151	256	448	257
Time	2	4074**	2470**	7580**	37830**	8671**
Rep X Time	4	828	523	615	108	123
Variety X Time	18	267	349*	845**	745	775*
Rep X Variety X Time	36	187	143	343	464	352
Treatment X Time	2	374	223	1431**	20322**	2631**
Rep X Treatment X Time	4	181	327	246	217	173
Variety X Treatment X Time	18	197	283	309	984*	361
Rep X Variety X Treatment X Time	36	159	216	209	590	310

*Significant at the 0.05 level.

**Significant at the 0.01 level.

[a] INFLP=plants infested with larvae and pupae; [b] INFTOT=plants fested with larvae, pupae, and emerged pupae; [c] PCTDPD=percent damaged pods; [d] PCTDPG=percent damaged pegs; [e] PCTDTOT=percent damaged pods and pegs.

Table 17. Yield in grams per 30.5cm in unsprayed and sprayed plots for Experiment II, conducted at Enos, Oklahoma in 1975.

Entry	Unsprayed				Sprayed[a]				Mean %
	Rep.1	Rep.2	Rep.3	Mean	Rep.1	Rep.2	Rep.3	Mean	Difference
P-215	30.5	44.5	27.4	34.1	50.3	61.8	47.6	53.2	35.6
P-900	33.5	30.0	39.5	34.3	59.4	53.7	49.5	54.2	36.0
P-959	45.5	61.5	27.8	44.9	48.5	67.5	65.5	60.5	24.2
P-1273	22.7	22.9	19.4	21.5	36.2	33.0	25.3	31.5	30.4
P-1291	25.6	32.9	27.7	28.7	53.7	49.3	39.9	47.6	38.7
P-1436 (Dixie Spanish)	44.6	50.9	60.2	51.9	50.8	53.1	61.8	55.2	6.3
P-1443 (Comet)	36.8	34.9	44.2	38.6	49.8	45.7	57.5	51.0	24.4
P-2339 (Florunner)	40.5	43.5	48.7	44.2	60.2	63.6	71.5	65.0	32.0
P-2374	64.8	49.5	57.1	57.1	85.5	62.5	78.2	75.4	24.0
Florigiant	46.0	29.8	33.6	36.5	53.3	69.8	49.0	57.4	32.4

[a] Sprayed with chlorpyrifos.

Table 18. Analysis of variance for yield in Experiment II, conducted at Enos, Oklahoma in 1975.

Source	df	Mean Squares
Reps	2	11.50
Varieties	9	682.21**
Rep X Varieties	18	93.1
Treatment	1	3792.15**
Rep X Treatments	2	0.12
Treatment X Variety	9	49.59**
Rep X Treatment X Variety	18	4.73

**Significant at the 0.01 level.

Table 19. Mean pods per plant and percent damaged pods for sampling times 1 and 2 for Experiment III, conducted at Enos, Oklahoma in 1975.

Entry	Sampling Time 1		Sampling Time 2	
	Pods per Plant	% Damaged Pods	Pods per Plant	% Damaged Pods
P-46	6.8	1.9	22.4	17.5
P-115	6.0	6.0	23.1	19.0
P-194	10.2	3.9	21.6	16.3
P-217	10.8	5.5	25.2	11.1
P-268	13.0	6.7	29.8	14.2
P-305	7.0	0.9	31.3	14.2
P-323	5.9	6.4	22.2	12.3
P-325	8.9	1.4	33.3	9.3
P-332	0.0	0.0	21.0	15.0
P-335	12.0	3.3	35.2	12.3
P-337	15.0	3.5	30.2	10.8
P-357	7.5	9.4	19.1	9.7
P-358	10.3	5.1	24.0	10.8
P-359	9.8	5.1	18.5	14.7
P-374	5.5	7.7	14.2	16.9
P-389	8.8	1.2	34.0	9.0
P-459	8.3	4.0	17.7	15.4
P-900	11.6	5.1	21.6	15.3
P-1060	6.9	2.0	24.3	12.0
P-1089	3.4	2.0	19.7	10.1
P-1093	8.4	5.9	26.8	10.1
P-1114	3.8	12.2	13.0	23.5
P-1241	0.5	0.0	14.7	4.8
P-1242	2.8	0.0	20.7	9.0
P-1245	6.4	9.3	17.7	19.5
P-1253	12.0	3.8	26.8	23.1
P-1256	10.2	3.2	26.1	19.7
P-1260	6.2	3.1	34.6	11.1
P-1261	3.2	18.7	27.9	13.7
P-1262	4.5	7.4	27.6	16.3
P-1263	8.3	5.4	45.0	21.9
P-1265	2.7	0.0	22.8	7.8
P-1279	13.4	2.4	27.3	12.1
P-1282	5.2	20.2	18.4	17.6
P-1284	3.5	5.1	22.2	9.2
P-1298	8.7	3.8	30.6	21.5
P-1303	1.8	2.6	30.2	8.8
P-1304	3.3	10.6	29.6	8.0
P-1306	5.1	1.2	15.7	21.1
P-1309	12.6	6.8	24.8	14.7
P-1318	7.3	4.5	19.5	11.2
P-1345	8.4	16.6	15.1	32.5
P-1443[a/]	15.4	1.9	32.0	8.2

Table 19 (Continued)

Entry	Sampling Time 1		Sampling Time 2	
	Pods per Plant	% Damaged Pods	Pods per Plant	% Damaged Pods
P-1446	7.0	14.2	26.6	25.8
P-1463	5.2	12.6	21.9	19.7
P-1466	7.2	3.4	24.6	24.1
AVERAGE	7.7	5.4	24.8	14.5

[a] Average of 3 rows per replication.

Table 20. Mean pegs per plant, percent damaged pegs, and percent infested plants for sampling times 1 and 2 for Experiment III, conducted at Enos, Oklahoma in 1975.

Entry	Sampling Time 1			Sampling Time 2		
	Pegs per Plant	% Damaged Pegs	% With LCB	Pegs per Plant	% Damaged Pegs	% With LCB
P-46	6.8	5.8	7	4.8	49.3	60
P-115	3.2	8.3	45	4.5	95.4	93
P-194	8.3	12.0	40	2.4	66.6	73
P-217	5.6	19.0	47	5.5	84.3	67
P-268	5.6	9.4	40	4.6	68.5	80
P-305	5.8	4.5	13	4.8	68.4	60
P-323	4.4	18.9	8	2.8	47.6	60
P-325	5.2	1.2	20	4.6	27.1	53
P-332	3.0	0.0	0	4.1	73.9	91
P-335	5.8	6.8	10	4.2	61.0	64
P-337	5.0	7.8	25	4.7	46.4	60
P-357	2.8	35.0	28	2.3	60.0	47
P-358	3.6	20.3	47	4.6	57.1	53
P-359	5.2	11.5	40	2.2	66.6	67
P-374	3.0	14.2	28	4.0	36.6	47
P-389	6.0	7.4	22	6.0	71.4	93
P-459	3.1	46.4	44	2.6	75.0	67
P-900	4.1	4.8	27	3.0	43.4	73
P-1060	4.4	1.6	14	3.8	34.4	53
P-1089	2.6	27.0	36	2.8	40.4	53
P-1093	2.9	27.5	40	4.1	61.2	53
P-1114	3.7	10.7	27	1.8	64.2	73
P-1241	2.4	0.0	58	4.2	18.3	36
P-1242	3.8	7.8	50	3.4	25.0	47
P-1245	4.1	17.7	47	2.5	65.7	33
P-1253	7.7	22.4	27	5.6	55.2	80
P-1256	7.5	11.5	7	6.2	57.4	53
P-1260	7.4	17.1	20	8.2	12.0	53
P-1261	4.2	14.2	0	6.5	69.4	85
P-1262	6.5	5.1	17	5.8	53.4	53
P-1263	6.5	11.1	36	8.6	67.6	67
P-1265	4.1	11.1	46	6.4	32.2	73
P-1279	5.4	11.1	27	2.4	63.8	53
P-1282	3.2	13.0	50	3.1	74.4	73
P-1284	4.4	4.4	36	4.0	46.6	53
P-1293	4.4	15.1	47	4.6	51.4	60
P-1303	3.2	10.2	13	10.3	8.3	80
P-1304	3.4	12.5	43	7.2	17.4	80
P-1306	4.8	20.8	13	8.6	43.8	67
P-1309	5.4	17.2	40	3.6	64.8	73
P-1318	4.5	19.5	0	6.2	62.3	53
P-1345	3.7	10.6	40	3.5	58.4	73
P-1443[a]	5.2	8.1	13	3.5	64.2	60

Table 20 (Continued)

Entry	Sampling Time 1			Sampling Time 2		
	Pegs per Plant	% Damaged Pegs	% With LCB	Pegs per Plant	% Damaged Pegs	% With LCB
P-1446	6.4	31.2	20	3.1	56.0	100
P-1463	3.2	27.0	53	2.5	36.8	80
P-1466	8.3	1.4	25	6.5	53.0	53
AVERAGE	4.7	13.4	28.3	4.5	53.8	64.6

[a] Average of 3 rows per replication.

Table 21. Analyses of variance for pods per plant, percent damaged pods and infested plants for sampling time 2 for Experiment III, conducted at Enos, Oklahoma in 1975.

Source	df	Mean Squares		
		Pods per Plant	Percent Damaged Pods	Infested Plants
Total (Corrected)	137			
Reps	2	418.5	57.5	6.16
Varieties	45	3187.5**	91.6*	1.42
Error	90	1217.2	60.8	1.59

*Significant at the 0.05 level.

**Significant at the 0.01 level.

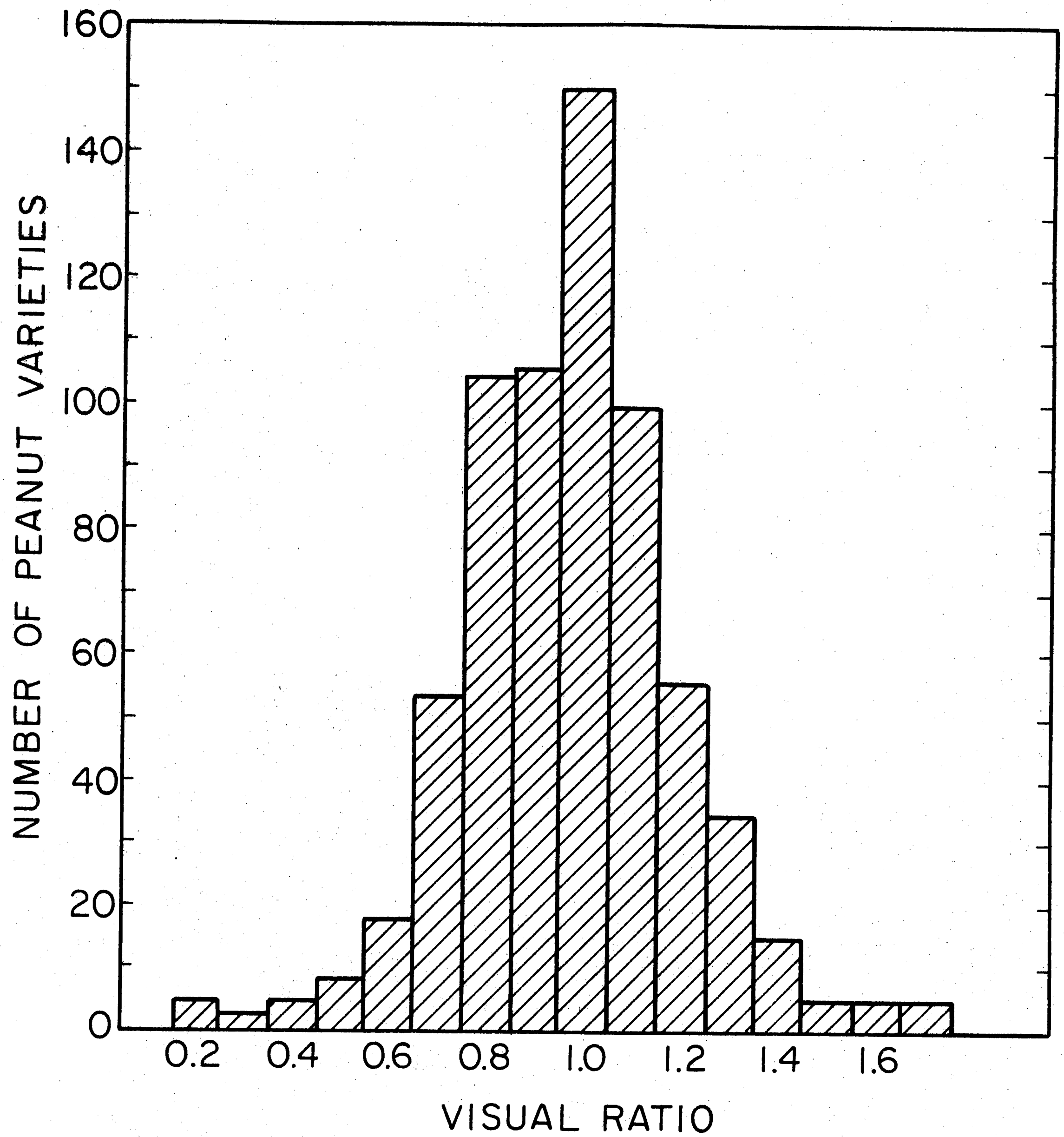

Figure 1. Frequency of occurrence of visual ratios of entries in all experiments conducted in the greenhouse. The damage ratio of each entry was divided by the damage rating for Comet in the same experiment.

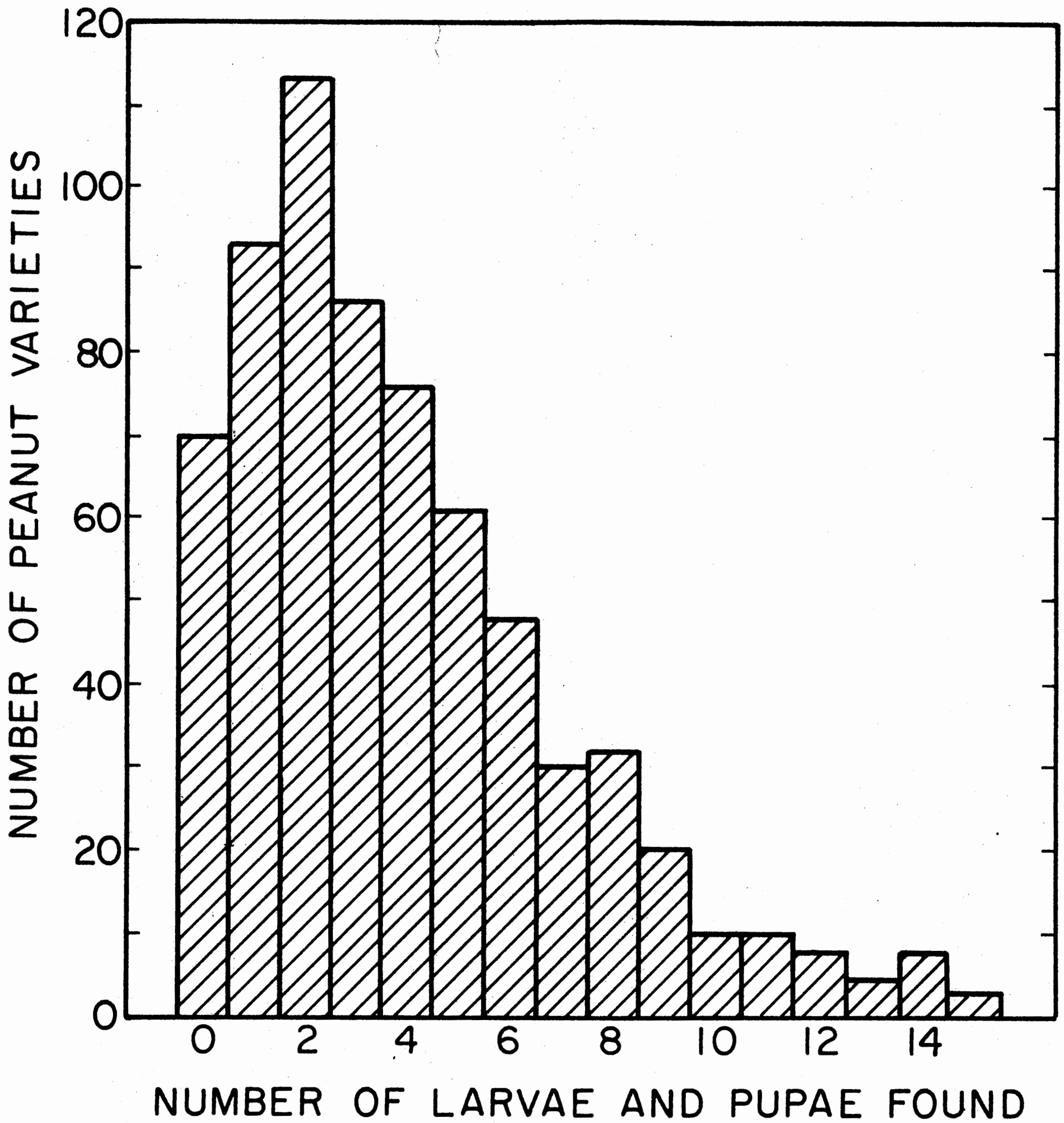

Figure 2. Frequency of occurrence of the number of larvae and pupae found in entries, in all experiments conducted in the greenhouse.

2

VITA

Syed Shahid Kamal

Candidate for the Degree of

Doctor of Philosophy

Thesis: RESISTANCE OF SPECIES OF ARACHIS TO LESSER CORNSTALK BORER

Major Field: Entomology

Biographical:

Personal Data: Born in Hyderabad, India, March 24, 1946, the son of Col. Syed Asadullah and Mariam Asadullah.

Education: Graduated from Madrasa-i-Aliya Secondary School, Hyderabad, India. Received the Degree of Bachelor of Science (Agriculture) from Andhra Pradesh Agricultural University, Hyderabad, India in February, 1969. Received the Degree of Master of Science (Entomology) from Oklahoma State University in 1973. Completed requirements for the Doctor of Philosophy (Entomology) in May, 1976 at Oklahoma State University.

Professional Experience: Advisory Representative for Lever Brothers (Pakistan) Ltd., 1969-1970; Research Assistant, Oklahoma State University, 1972-1973; Teaching Assistant, Oklahoma State University, 1973; Research Assistant, Oklahoma State University, 1973-1975.

Professional Organizations: Entomological Society of America; Entomological Society of Canada; Sanborn Entomology Club, Oklahoma State University.