No. 9900338

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Texas Agricultural Experiment Station

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE , OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE [illegible] 84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

PEANUT

'Coan'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this eighteenth day of April, in the year two thousand two.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions* — Form Approved - OMB No. 0581-005

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER
Texas Agricultural Experiment Station

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME
TP-262-3-5

3. VARIETY NAME
"COAN"

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
G. Dewey Liccioni
Office of the Director
110 Administration Building
College Station, TX 77843-2147

5. TELEPHONE *(include area code)*
409-847-9325

6. FAX *(include area code)*
409-845-9938

FOR OFFICIAL USE ONLY

PVPO NUMBER
9900338

FILING DATE
6/18/99

7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)*
State of Texas Research Agency

8. IF INCORPORATED, GIVE STATE OF INCORPORATION

9. DATE OF INCORPORATION

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION *(First person listed will receive all papers)*

Janie Hurley, Technology Licensing Associate
Agriculture/Life Sciences, Technology Licensing Office
The Texas University System, 3369 TAMU
College Station, TX 77843-3369

FEES RECEIVED

FILING AND EXAMINATION FEES:
$ 2450.00
DATE 6/18/99

CERTIFICATION FEE:
$ 320-
DATE 4/5/2002

11. TELEPHONE *(Include area code)*
409-847-8682

12. FAX *(Include area code)*
409-845-1402

13. E_MAIL

14. CROP KIND *(Common Name)*
Peanut

15. GENUS AND SPECIES NAME OF CROP
Arachis hypogaea

16. FAMILY NAME *(Botanical)*
Leguminosae

17. IS THE VARIETY A FIRST GENERATION HYBRID?
☐ YES ☒ NO

18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)

- a. ☒ Exhibit A. Origin and Breeding History of the Variety
- b. ☒ Exhibit B. Statement of Distinctness
- c. ☒ Exhibit C. Objective Description of Variety
- d. ☒ Exhibit D. Additional Description of the Variety *(Optional)*
- e. ☒ Exhibit E. Statement of the Basis of the Owner's Ownership
- f. ☒ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository)*
- g. ☒ Filing and Examination Fee ($2,450), made payable to "Treasurer of the United States" *(Mail to the Plant Variety Protection Office)*

19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? *See Section 83(a) of the Plant Variety Protection Act)*
☒ YES *(If "yes", answer items 20 and 21 below)* ☐ NO *(If "no," go to item 22)*

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☒ YES ☐ NO

21. IF "YES" TO ITEM 20, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☒ FOUNDATION ☒ REGISTERED ☒ CERTIFIED

22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?
☐ YES ☒ NO
IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. *(Please use space indicated on reverse.)*

23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT *(PLANT BREEDER'S RIGHT OR PATENT)*?
☐ YES ☒ NO
IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. *(Please use space indicated on reverse.)*

24. The owners declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER		SIGNATURE OF OWNER	
NAME *(Please print or type)* G. Dewey Liccioni		NAME *(Please print or type)*	
CAPACITY OR TITLE Asst. Vice Chancellor-TAES	DATE 10 Jun 99	CAPACITY OR TITLE	DATE

Exhibit A.

ORIGIN AND BREEDING HISTORY OF COAN PEANUT

COAN, TP-262-3-5, was derived from an introgression pathway (Simpson, 1991) utilizing a component line of Florunner as the recurrent parent in a backcross program and the initial cross made with a complex interspecific hybrid (2n=40) formed by first crossing *Arachis Cardenasii* Krapov. and W.C. Gregory x *A. Diogoi* Hoehne, then crossing that 50% pollen fertile hybrid with *A. Batizocoi* Krapov. and W.C. Gregory. The resulting tri-species hybrid (2n=20) was 1% pollen stained and produced no fruits. The chromosome number was doubled with colchicine to form TxAG-6 (Simpson, et.al. 1993). TxAG-6 is about 89% pollen stained and is highly fertile, both selfed and crossed with *A. hypogaea*. The fertile amphiploid was crossed with Florunner (component line UF439-16-10-3-2), and five backcrosses produced the TP-262-3-5. In each generation, selection was made for agronomic characters matching those of Florunner and for resistance to root-knot nematodes (see Nelson, et.al. and Starr, et.al.). Since the COAN variety was developed from such a backcrossing program, the line should be quite uniform and stable for characters expressed in the recurrent Florunner component line. That, in fact, is the case. COAN has been stable and uniform for characters observed for five generations. Characters observed include (but not limited to): root-knot nematode resistance, pod and seed size, pod and seed shape, vine size (17% smaller than Florunner), mainstem height, shelling percentage, dormancy of seeds, maturity, leaflet size and shape, susceptibility to leaf spot and tomato spotted wilt virus, and branching pattern. Variants are as follows: Variegated leaves, <1 in 10,000 plants; three seeded pods, 1 in 400; wine colored testa, <1 in 25,000. Other variants have not been observed.

Resistance to the nematode species was confirmed in the third and fourth self-pollinated generations of TP-262-3-5. From the $BC_5F_{2:3}$ we selected 137 of 300 individual plants for uniform phenotype, screened ten seeds each for nematode resistance, selected 127 plant rows which had no susceptible plants (of the 10 seeds tested) and grew these plant rows in Puerto Rico for winter increase, 1997-1998. The increase resulted in 468 kg of breeder seed which were planted near Dilley, TX, for summer increase in 1998 for foundation seed. This planting was uniform with variants only as noted above.

Please see Exhibit D. for more details.

Exhibit B.

STATEMENT OF DISTINCTIVENESS OF COAN PEANUT

COAN Peanut, TP-262-3-5, is a runner market-type peanut (*Arachis hypogaea* L. subsp. *hypogaea* var. *hypogaea*) cultivar with a high level of resistance to root-knot nematode (*Meloidogyne arenaria* (Neal) Chitwood), see Figures 1-3. The new variety was tested as TP-262-3-5 and was released by the Texas Agricultural Experiment Station in March 1999.

COAN has a smaller vine size than Florunner (17% by measurement of mainstem and cotyledonary laterals). The smaller canopy has a rounded appearance in mature plants, with the mainstem not visible in most locations and seeding rates. The lateral branching is profuse, like Florunner, and the pattern is alternate, but not uniformly 2 x 2. Leaf color is light green, like Florunner. Pods of COAN are similar in size and shape to Florunner, mostly two seeded (approximately one in 400, three seeded). The construction between the kernels is slightly greater than Florunner (4%). Seed size is almost identical to Florunner and averages 57 g/100 sd.

COAN averaged numerically less than Florunner and Tamrun 96 in 19 tests, 1996-1998, in yield but was not statistically different than the two check cultivars (rejection level = 0.10). In six tests with damaging levels of root-knot nematode present, COAN averaged 227% higher in yield (see Tables 1, 2, & 3) and 240% higher in value per hectare than Florunner, with no chemical application for nematode control (see Tables 4 & 5).

In shelling tests, COAN was not different (0.10 rejection level) from Florunner in jumbo, medium, or US #1 turnout. Splits, other kernels, damage kernels and oilstock were equal to Florunner and 100 seed weight (g) was equal to Florunner, at 57 g/100 (see Table 6).
Quality analyses indicated no significant difference between COAN and Florunner: O/L ratio = 1.2, oil content = 47.6%, Protein 24%, flavor equal and blanchability the same.

9900338

PROPOSAL TO RELEASE
'COAN' PEANUT

This is a proposal to release the Texas peanut breeding line, TP-262-3-5 as the peanut variety **'COAN'** for production on soils which are infested with the root-knot nematode species Meloidogyne arenaria. COAN has a high level of resistance to the root-knot nematode which has been transferred from a wild peanut collected in Bolivia. The variety was developed through a backcrossing program which utilized the highly productive peanut variety 'Florunner' as the recurrent parent. The transfer of the resistance gene was accomplished through development of a complex amphidiploid hybrid among three wild species. COAN is very similar to Florunner in most of its characteristics: it has equivalent yields and grades, pod and seed size are similar, quality factors are essentially the same, and shelling characteristics are equal to Florunner. COAN will provide a variety choice for producers who have damaging levels of root-knot nematode, allowing growers to produce a normal yield without applying chemicals for control of the nematode at a cost of up to $150 per acre. This would not only be a huge savings to the producer, it could result in environmental benefits to the general public.

FORM APPROVED: OMB NO. 40-R3822

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
~~LIVESTOCK, POULTRY, GRAIN & SEED DIVISION~~
BELTSVILLE, MARYLAND 20705

9900338

OBJECTIVE DESCRIPTION OF VARIETY
PEANUT (Arachis hypogaea)

NAME OF APPLICANT(S)
Texas Agricultural Experiment Station

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)
P. O. Box 292
Stephenville, TX 76401

VARIETY NAME OR TEMPORARY DESIGNATION
TP-262-3-5

FOR OFFICIAL USE ONLY
PVPO NUMBER
9900338

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. BOTANICAL TYPE:

[1] Flowering on the Main Stem: 1 = ABSENT 2 = PRESENT

[3] Branching Pattern: 1 = ALTERNATE – Pairs of vegetative & reproductive branches (Virginia) 2 = SEQUENTIAL – Continuous reproductive branches (Valencia–Spanish) 3 = OTHER (*Specify*) Alternate, but not regular 2x2, V/R

2. PLANT:

[1] Habit: 1 = PROSTRATE (*Florunner*) 2 = DECUMBENT (*NC–5*) 3 = SEMI-ERECT (*Florispan*) 4 = ERECT (*Starr*)

[3] Branching: 1 = SPARSE (*Valencia*) 2 = MODERATE (*Starr*) 3 = PROFUSE (*Florunner*)

3. MATURITY:

[3] Region: 1=VIRGINIA, NORTH CAROLINA 2 = S.E. UNITED STATES 3=S.W.UNITED STATES 4=OTHER

[1][4][0] NUMBER OF DAYS TO MATURITY

[ ][0] NO. OF DAYS EARLIER THAN . . . . . [2] 1 = STARR 2 = FLORUNNER 3 = FLORIGIANT 4 = VIRGINIA 61R 5 = NC - 2 6 = NC - 5 7 = SOUTHEASTERN RUNNER 56-15 8 = OTHER (*Specify*) _____

[ ][0] NO. OF DAYS LATER THAN . . . . . [2]

4. LEAVES:

[4] COLOR AT 60 DAYS: ~~(Nickerson Color Designation)~~: 1 = LIGHT GREEN (10Gy 6/9) 2 = MEDIUM GREEN (2.5G 5/9) 3 = DARK GREEN (5G 4/7) 4 = OTHER (*Specify*) RHS-137A

[4][7] MM. LEAFLET LENGTH (*Basal leaflet of the youngest fully opened leaf*)

[2.][6][1] LEAFLET LENGTH/WIDTH RATIO

5. POD: (Average for 20 pods at maturity)

[2][8] MM. LENGTH

[1][3] MM. DIAMETER

[3][1][0][1] KG./HA. POD YIELD Flo. 3050

[ ][N][A] % LESS THAN . . . . . [ ] 1 = STARR 2 = FLORUNNER 3 = FLORIGIANT 4 = VIRGINIA 61R 5 = NC - 2 6 = NC - 5 7 = SOUTHEASTERN RUNNER 56-15 8 = OTHER (*Specify*) _____

[0][1.][6] % MORE THAN . . . . . [2]

[N][A] % FANCY SIZE: (*% riding 13.46 mm., 34/64 inch, spacing set on presizer roller*)

FORM LPGS-470-29 (8-80) (Formerly Form GR-470-29 (6-17-74) which may be used)

5

5. POD (Average for 20 pods at maturity):

[2] NUMBER OF SEEDS PER POD 1 = 1 2 = 2 3 = 3 4 = 3-4 5 = 2-3-4

9900338

[2] CONSTRICTION: 1 = SHALLOW OR NONE (*Virginia 56R, Argentine*) 2 = MEDIUM (*Virginia 61R*) 3 = DEEP (*Starr*)

[1] SURFACE: 1 = GLABROUS (*Florunner*) 2 = PUBESCENT (*Florispan*)

[2] BEAK: 1 = ABSENT 2 = INCONSPICUOUS 3 = PRONOUNCED

6. SEED (Mature, cured but not aged):

[0][3] COAT COLOR: 1 = WHITE (*Pearl*) 2 = CREAM 3 = TAN (*Starr*) 4 = BROWN 5 = PINK (*Florigiant*) 6 = RED 7 = PURPLE 8 = DARK PURPLE 9 = VARIGATED 10 = OTHER (*Specify*) _____

[2] COAT SURFACE: 1 = SMOOTH 2 = INDENTED [2] 1 = UNIFORM COLOR 2 = BLEMISHED

[2] SHAPE: 1 = SPHERIODAL (*Starr*) 2 = SHORT-BROAD (*Florunner*) 3 = ELONGATED-SLENDER (*Dixie Runner*) 4 = CYLINDRICAL-TAPERED ENDS 5 = CYLINDRICAL-BLUNT ENDS (*NC-2*) 6 = OTHER (*Specify*) _____

[1][4] MM. LENGTH [0][9] MM. WIDTH [5][7] GRAMS PER 100 SEED (*8% Moisture*)

7. DISEASE RESISTANCE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[1] SOUTHERN STEM ROT
[1] EARLY LEAF SPOT
[1] SOUTHERN LEAF SPOT
[1] POD ROT COMPLEX
[1] RUST
[1] VIRUS X TSWV
[0] MOSAIC
[ ] OTHER (*Specify*) _____

8. INSECT RESISTANCE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[1] THRIPS
[1] LEAF HOPPER
[0] SOUTHERN CORN ROOTWORM
[0] APHID
[0] BURROWING BUG
[2] NEMATODE (*Specify species*) Meloidogyne arenaria
[0] LESSER CORNSTALK BORER
[0] OTHER (*Specify*) _____

9. COMPARISON OF SUBMITTED VARIETY WITH ONE OR MORE SIMILAR VARIETIES:

VARIETY	OIL* %	PROTEIN* (%)	OLEIC: LINOLEIC ACID RATIO	IODINE* NUMBER	SHELLING (%)	SMK** (%)	ELK+ (%)	MAIN STEM HEIGHT (CM)
SUBMITTED	47.6	24	1.2	NA	76.9	70.8	NA	29
SIMILAR	48.0	24	1.3	NA	75.3	68.1	NA	37
NAME OF SIMILAR VARIETY	Florunner	Flo.	Flo.	Flo.	Flo.	Flo.		Flo.

* *From Sound Mature Kernels* ** Sound Mature Kernels + Extra Large Kernels

10. INDICATE A VARIETY WHICH MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	VARIETY	CHARACTER	VARIETY
POD COLOR	Florunner	SEEDLING VIGOR	Florunner
SEED DORMANCY	Florunner	HULL THICKNESS	Florunner
SEED SIZE	Florunner	LEAF COLOR	Florunner

11. COMMENTS (Additional description or clarification – Such as: Relative disease reactions may be compared with standard varieties)

The variety is released for its high level of resistance to Root-Knot Nematode (Meloidogyne arenaria).

9900338

Summary of proposal to release
'COAN' Peanut

* First variety release in peanut with resistance to root-knot nematode

* Resistance is not immunity, but high enough to alleviate the need for $150 per acre chemical costs for nematode control

* Is comparable to Florunner[1/] variety in all aspects tested to date, including:
  ** yield
  ** grade
  ** value
  ** quality
  ** shelling

* adapted to the area of Texas with most severe root-knot nematode problems

* data on adaptation to other areas pending

* Through testing and/or observation, we know TP-262-3-5 is not resistant to early and late leafspot, rust, Aspergillus niger, southern blight, Pythium sp. pod rot, sclerotinia blight, tomato spotted wilt virus, thrips, aphids, and spider mites.

[1/] Florunner has been the most widely grown variety of peanut in the US for many years. Its percentage of acreage has declined somewhat in recent years because newer varieties have been superior in some situations. This has been especially true since our release of 'Tamrun 96' and the release of 'Georgia Green', which have resistance to tomato spotted wilt virus.

Description of TP-262-3-5

Breeding history

The Peanut Breeding line TP-262-3-5 was derived from a backcrossing program where we transferred a gene for root-knot nematode resistance from a tetraploid wild peanut complex interspecific hybrid into the cultivated peanut variety, Florunner. The complex hybrid was formed by crossing Arachis Cardenasii X A. Diogoi. This 50% pollen fertile diploid hybrid was then crossed with A. batizocoi. The resulting diploid hybrid was sterile (pollen stain = < 1%) but was chromosome doubled with colchicine to give a 94% pollen fertile tetraploid plant which was then crossed to A. hypogaea (2n=4x= 40), cv. Florunner. Selection for agronomically acceptable plants provided the females for the backcrossing program, and five generations of backcrosses were accomplished, always using Florunner as the recurrent parent, with selection for resistance in each cycle (see below). TP-262-3-5 was selected from progeny from the BC_5 and selfed for five generations. The population is uniform in phenotype and apparently quite stable in genotype. The introgression pathway was published in 1991 (Simpson 1991 See attached reprint). For purification of plant characters and nematode resistance, 127 of 300 individual selfed plants were selected and planted in plant rows in Puerto Rico for winter increase in November 1997 (Figure 2). These lines were bulked to form the breeder seed which was planted on 21 acres in 1998. We have field tested the line for three years, 1996-1998.

Yield, grade and value data

We have yield data from nineteen tests, all but one of which are from the central Texas area including Comanche, Eastland, Erath and Mason Counties. The test outside the area was conducted at Brownfield, in Terry County in 1998. Six of the tests had root-knot nematodes present in damaging numbers and when these tests were analyzed as a unit, the mean yield of TP-262-3-5 was significantly higher than Florunner (Table 1, Also, see Figure 1). Average yield of TP-262-3-5 in these six tests was more than twice the average yield of Florunner. The check variety Tamrun 96 was not available for testing in 1996, thus we did not include the variety in the yield comparisons under nematode pressure (Table 1). Yield data for all 19 tests are presented in Table 2, which shows that the mean yield of TP-262-3-5 was not different from the two check entries, Florunner and Tamrun 96. When the tests which did not have nematode pressure are broken out the same result is obtained: no significant difference between TP-262-3-5 and the two checks (Table 3).

Grade data and thus value per acre data are available on only 12 of the 19 tests at this writing. Grade data (Table 4) show that the grades for all tests are not significantly different (TSMK: Tamrun 96 - 70; TP-262-3-5 - 71; Florunner - 68, n.s. @ 0.10) and the seed size of TP-262-3-5 is acceptable in relation to Florunner and/or Tamrun 96. Analyses of the grade

data from the nematode infested locations reveals that adverse affects were recorded on the checks as compared to TP-262-3-5, although not always significant. For example (Table 5), Total Sound Mature Kernels (TSMK) were lower in Florunner and Tamrun 96, Damaged Kernels (DMG) and Other Kernels (OK) were higher in the check varieties under nematode pressure. Seed size of TP-262-3-5 is not different from Florunner.

Values per acre were calculated using the Market Price Schedule from the USDA for 1998 in all cases. Again, the values per acre were not greatly different for all twelve tests (Table 4), but when the five with nematode pressure were broken out, significant differences were observed between Florunner and TP-262-3-5 (Table 5).

Additional tests outside the Central Texas area were conducted in 1998 in collaboration with peanut breeders in other states (i.e., Alabama, Florida, Georgia, North and South Carolina, Oklahoma, and Virginia). These data were not available at the time of this writing.

About the data analyses

Data analyses on individual tests have been completed for only those tests from 1996 and 1997. We are still processing data for 1998, so complete analyses of all lines in each test are not available. The data we analyzed were based on the location means for each of the three lines; TP-262-3-5, Florunner, and Tamrun 96. An ANOVA, with LSD mean separation, was run on the test means. We conducted a test for normality of the data called a "Runs test." These analyses indicated that most the data were normally distributed. The statistical analysis program we used to conduct our data evaluation also gave a Bartlett's test (Snedecor and Cochran, 1980) of equal variances and a Cochran's Q value (Dixon and Massey, 1957). Over all, we interpret these evaluations to indicate that utilizing location means for analyses of our data was acceptable from a statistical viewpoint.

Plant description

The mainstem of plants of TP-262-3-5 are not prominent and are 21% and 17% shorter than Tamrun 96 and Florunner, respectively, and the lateral branches are ten to twelve cm shorter than Florunner and Tamrun 96. The mature canopy of TP-262-3-5 has a rounded appearance but not "bunch" in the descriptive sense (see Figure 1). The leaves are very similar in color to Florunner and the leaflets average 1 mm narrower (n.s.) and 7.8 mm shorter ($P = 0.01$) than Florunner and Tamrun 96.

The pods of TP-262-3-5 are mostly two-seeded and not different in length and width from most Florunner pods, but the constriction between the pod segments is slightly greater (about 4%). The percentage of three-seeded pods in TP-262-3-5 is approximately 0.25% (one in 400). The three-seeded pods are usually quite distinctive. The apical segment of the pod usually has a crooked attachment to the other segments. Three-seeded pods do occur in Florunner but are rare (by our counts, one per

1000). The seed of TP-262-3-5 are equal in diameter to Florunner and Tamrun 96 (9.0 vs 9.1 mm) but are slightly shorter than Tamrun 96 (14.7 vs 14.0 mm), yet equal to Florunner in length (14.1 vs 14.0 mm). The mature seeds are pink when maturing in the pod but are tan upon drying. The inside (back side) of the testa is bronze in mature seed.

Resistance to root-knot nematode

Resistance to root-knot nematodes is defined as inhibition of nematode reproduction on the resistant genotype relative to that of a standard susceptible genotype. In the development of TP-262-3-5, resistance has been measured as a reduction in numbers of eggs of Meloidogyne arenaria compared to those produced on the susceptible cultivar, Florunner. Resistance of individual plants was determined in greenhouse tests by inoculation of plants with a suspension of 10,000 nematode eggs and measuring eggs produced per gram of fresh root weight after 8 weeks (ca. two nematode generations). Plants with fewer than 10% of the eggs produced on the susceptible Florunner were classified as resistant. In two tests of BC_5F_2 individuals, 97 of 100 individuals were resistant to M. arenaria and produced a mean of 17 eggs/g of roots (range of 0 to 253 eggs); whereas, a mean of 2,255 eggs/g of roots were produced on Florunner (Fig. 2). Similarly, in the production of breeder seed, 10 seed from each of 137 individual plants were examined for evidence of susceptibility in greenhouse tests. No susceptible individuals were detected in 127 single plant progenies based on eggs produced. The progenies of the individuals still segregating for resistance were rogued from the population.

Nematode resistance was confirmed in nine tests conducted in 1996, 1997, and 1998 in producers' fields naturally infested with M. arenaria. Two tests were conducted in 1996 (Locations 10 and 11 in data tables) with three replicated plots of TP-262-3-5 and Florunner, and one test was conducted in 1997 (Location 20, yield data were lost due to harvesting error). Six more tests were planted in 1998 (Locations 3, 6, 7, 8, 18, and 20 in tables) with four replications of each genotype and the susceptible cultivar, Tamrun 96, in addition to Florunner and TP-262-3-5. All plots were two rows by 3 meters long. To estimate final nematode populations, composite soil samples were collected from each plot approximately 2 weeks before crop harvest. Nematodes were extracted from soil by elutriation and centrifugation. Final nematode population densities were lower ($P = 0.05$) in plots of TP-262-3-5 than in plots of Florunner or Tamrun 96 in 7 of 9 tests (Fig. 3). In the remaining two tests premature senescence of susceptible cultivars due to high levels of nematode parasitism (See Figure 1) limited the population growth of the nematodes which are obligate biotrophs and are dependent on living hosts for reproduction. Therefore, we actually recovered lower numbers of nematodes because susceptible plants were dead.

Quality analyses

Preliminary quality analyses run in 1997 indicated that there were no significant differences between TP-262-3-5 and Florunner. Additional samples have been submitted to commercial laboratories from the 1998 crop. At this writing none of the data has become available.

We were able to obtain a protein analyses which was conducted by Mr. Richard Wolfe, Research Assistant, in the laboratory of Dr. James Muir, Assistant Professor, at TAMU REC, Stephenville. Duplicate analyses were run on nine samples; one composite sample from each of TP-262-3-5, Florunner, and Tamrun 96, and chosen from each of three locations -- Brownfield (Terry County), Stephenville (Erath County) and Desdemona (Far western Erath County). The protein content was not different (P=0.05) among varieties or locations, averaging 24.05 for TP-262-3-5, 24.03 for Florunner, and 25.37 for Tamrun 96.

Shelling tests

Shelling data were recorded on the 127 lines harvested from the winter nursery grown in Puerto Rico in winter 1997-'98. We recorded the percentage of: Jumbos (those peanuts riding a 21/64" X 3/4" slotted screen), Mediums (those peanuts passing the 21/64" and riding an 18/64" X 3/4" slotted screen), US No. 1's (those peanuts passing the 18/64" screen and riding a 16/64" X 3/4" slotted screen). We also recorded "other kernels" (those peanuts passing through the 16/64 screen). We recorded split kernels, percent moisture, and "Oil stock" peanuts as well. The turn-out was very high in jumbo and medium kernels. Unfortunately, a Florunner check was not included in the nursery, so no comparison was possible.

Additional shelling tests were conducted on 42 samples of the three lines, TP-262-3-5, Florunner, and Tamrun 96, from three locations and a total of five tests. We recorded the same data as listed above. The turnout percentages are shown in Table 6.

These data were discussed with a shelling company CEO. His comment was to the effect that we obtained a much higher turn-out on our samples than his shelling plant usually obtains. Our research model sheller was designed and built by USDA personnel to approximate a commercial shelling plant, but in our case the machine apparently handles the peanuts much gentler than a commercial sheller because the splits and oil stock portions are much lower than expected and the "jumbos" category is higher than expected. It was pointed out by the CEO that the jumbo (largest peanuts) would be the source of almost all additional splits and oil stock (pieces and embryos from splits) if the peanuts were handled less gently in the shelling process.

The CEO's comment concerning the TP-262-3-5 was that apparently it will shell as well as the Florunner variety (indicating a positive response).

Explanation of proposed name. When we first started our program to locate usable levels of root-knot nematode resistance,

we had considerable difficulty in obtaining funding for the effort. At that time (mid-1980's) the secretary-treasurer of the Texas Peanut Producers Board was Mr. Lyndell Coan, a Central Texas peanut grower who had an ever increasing infestation of root-knot in his peanut fields. He believed our optimism, first in being able to identify resistance and then later in being able to transfer the resistance into a commercial variety. Mr. Coan was our "champion" with the Texas Peanut Producers Board for several years, always willing to listen to our reports of progress and anxious to know "when," and ever willing to lead the support for our annual request for funding. Because of this support and to honor a long-time contributor to the industry through his service on the Texas Peanut Producers Board, (Mr. Coan later served as vice-president and then president of the Board) we propose to name this first resistant variety after him -- **COAN**. Mr. Coan has retired from farming but still resides in De Leon, Texas.

References

Dixon, W.J. and Massey, F.J.,Jr. 1957. Introduction to Statistical Analysis. 2nd Ed. McGraw-Hill Book Co., Inc. NY.

Snedecor, G.W. and Cochran, W.G. 1980. Statistical Methods. 7th Ed. The Iowa State Univ. Press. Ames, Iowa.

9900338

Table 1. **Yield (lbs. pods/ac.) for TP-262-3-5 and Florunner 1996 - 1998 With yield damaging nematode population.**

Location *	TP-262-3-5	Florunner
6	1398	828
7	1452	1343
8	1489	862
10	3364	815
11	2655	709
18	596	292
Mean	1826 a**	808 b

* Location ID listed in Table 7.
** Means bordered by same letters are not different (LSD, Rejection level = 0.01)

Table 2. **Yield (lbs. pods/ac.) for TP-262-3-5, Florunner and Tamrun 96 1996 - 1998 19 Tests**

Location*	TP-262-3-5	Florunner	Tamrun 96
1	972	742	1371
2	6458	7465	7308
3	1872	2018	2472
4	3843	3429	2925
5	3865	4397	3929
6	1398	828	1592
7	1452	1343	1132
8	1489	862	1142
9	1961	2785	2861
10	3364	815	M
11	2655	709	M
12	4000	4174	M
13	2633	3201	4499
14	3183	4286	4428
15	3016	3724	3867
16	3223	3337	3821
17	3480	3606	3923
18	596	292	478
19	3136	3705	4542
mean	2768 a**	2722 a	3143 a

*Location ID listed in Table 7.
** n.s. @ Rejection level = 0.10

Table 3. **Yield (lbs. pods/ac.) for TP-262-3-5, Florunner and Tamrun 96 1996-1998 13 Tests w/o nematode damage.**

Location*	TP-262-3-5	Florunner	Tamrun 96
1	972	742	1371
2	6458	7465	7308
3	1872	2018	2472
4	3843	3429	2925
5	3865	4397	3929
9	1961	2785	2861
12	4000	4174	M
13	2633	3201	4499
14	3183	4286	4428
15	3016	3724	3867
16	3223	3337	3821
17	3480	3606	3923
19	3136	3705	4542
mean	3203 a**	3605 a	3829 a

*Location ID listed in Table 7.
** n.s. @ Rejection level = 0.10

Table 4. **Yield, grade, and value/acre for TP-262-3-5, Florunner, Tamrun 96 in 12 Tests 1996-1998.**

Var.	Val/ac $	Pods/ac lbs	TSMK %	DMG %	Other %	100 sd g
Tamrun 96	900 a*	2748 a*	70 a*	2.6 a*	2.9 b*	60 a**
TP-262-3-5	868 a	2777 a	71 a	1.5 a	4.6 ab	57 ab
Florunner	770 a	2464 a	68 a	2.3 a	4.9 a	54 b

* Rejection level = 0.10
** Rejection Level = 0.01

Table 5. **Yield, grade and value/acre for TP-262-3-5, Florunner, and Tamrun 96 in 5 Tests with nematode pressure effecting yield 1996- 1998.**

Var.	Val/ac $	Pods/ac lbs	TSMK %	DMG %	Other %	100 sd g
TP-262-3-5	607 a***	2072 a**	67 a*	2.0 b*	5.8 ab*	56 b*
Tamrun 96	364 ab	1288 ab	65 a	6.0 a	2.2 b	62 a
Florunner	252 b	911 b	62 a	4.0 a	6.2 a	51 b

* Rejection level = 0.10
** Rejection level = 0.05
*** Rejection level = 0.01

Table 6. Shelling data for TP-262-3-5, Florunner, and Tamrun 96.

Category (%)	TP-262-3-5	Florunner	Tamrun 96
Jumbo peanuts	30.2 b*	33.6 ab	36.2 a
Medium peanuts	30.4 a**	30.4 a	24.5 b
US no.1 peas	5.0 a***	3.8 ab	3.4 b
Splits	7.8 a*	8.1 a	9.9 a
Other	1.5 a*	1.1 a	0.6 a
Oil stock	1.3 a*	0.9 a	1.2 a

* Means in the same row with the same letter are not different. * = Rejection level 0.10, ** = Rejection level 0.05, *** = Rejection level 0.01.

Table 7. Locations of tests in data analyses and comments

1. Comanche County 1998 (Butler) Nematode population did not develop.
2. Terry County 1998 No nematodes expected, none present.
3. Comanche/Erath County line 1998 (Lesley) Nematode development late in season - counts high, little or no damage (yield effects).
4. Mason County 1998 Nematode population developed deep and late, Counts low, nematode damage low. Yield reductions attributable to other than nematode presence.
5. Stephenville Test 1 1998 No nematodes present.
6. Erath County 1998 (Koonce test 3) Nematode population developed late -- counts high, damage moderate.
7. Erath County 1998 (Koonce test 4) Nematode counts high, damage high.
8. Erath County 1998 (Koonce test 5) Nematode counts high, damage high.
9. Stephenville Test 1 1997 No nematodes present.
10. Comanche County 1996 Nematode counts high, damage high.
11. Eastland County 1996 Nematode counts high, damage high.
12. Stephenville Test 1 1996 No nematodes present.
13. Erath County UPPT 1998 No nematodes present.
14. Stephenville Test 2 1998 No nematodes present.
15. Stephenville Test 3 1998 No nematodes present.
16. Stephenville Test 4 1998 No nematodes present.
17. Stephenville Test 5 1998 No nematodes present.
18. Erath County 1998 (Koonce test 1) Nematode counts high, damage high.
19. Erath County 1998 Advance lines test No nematodes present.
20. Erath County 1997 (Koonce Farm) Yield data lost to harvest error. Nematode damage high.
21. Erath County 1998 (Koonce test 2) Yield data not yet available. Nematode damage high.

Figure 2. Comparison of reproduction of the root-knot nematode, *Meloidogyne arenaria*, on Florunner and the resistant TP262-3-5 in greenhouse tests. Individual plants without any detectible eggs are represented by a 0. The horizontal line represents 10% of the mean value for Florunner.

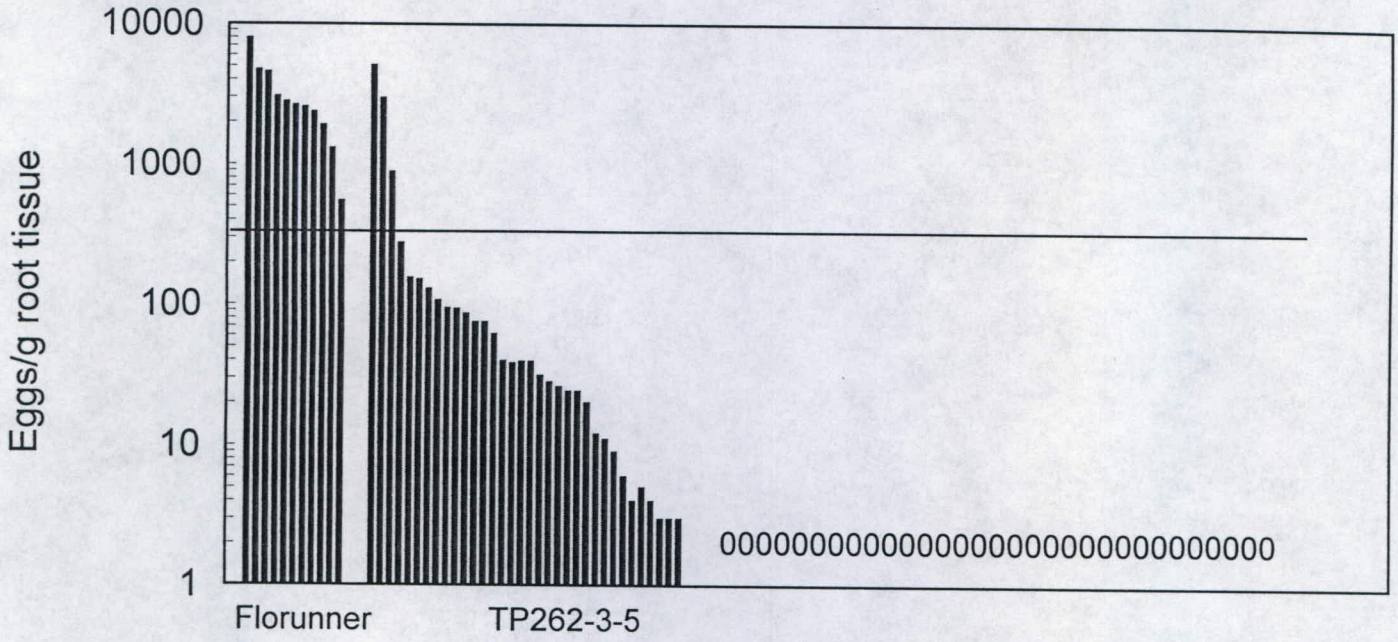

Figure 3. Final population densities of root-knot nematodes on TP262-3-5, Florunner, and Tamrun 96 in nine field tests conducted in 1996, 1997, and 1998.

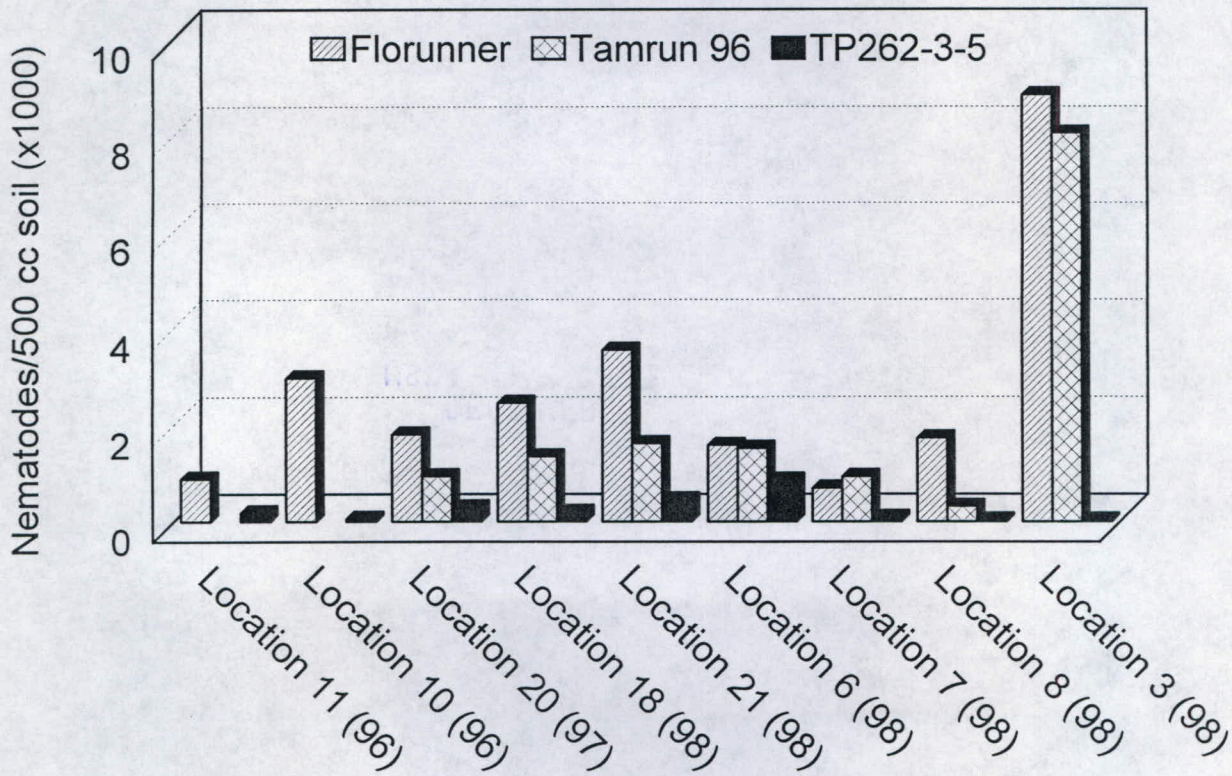

Figure 1.

Florunner and TP-262-3-5 under heavy nematode pressure on Koonce farm in Erath County, 1998.

Florunner

TP-262-3-5

9900338

REPRODUCE LOCALLY. *Include form number and edition date on all reproductions.* FORM APPROVED - OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)

Texas Agricultural Experiment Station

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER

TP-262-3-5

3. VARIETY NAME

"COAN"

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP, and Country)*

Room 110 Administration Building
College Station, TX 77843-2147

5. TELEPHONE *(include area code)*

409-847-8682

6. FAX *(include area code)*

409-845-1402

7. PVPO NUMBER

9900338

8. Does the applicant own all rights to the variety? *Mark an "X" in appropriate block.* If no, please explain. [X] YES [ ] NO

9. Is the applicant (individual or company) a U.S. national or U.S. based company? [X] YES [ ] NO

If no, give name of country

10. Is the applicant the original owner? [X] YES [ ] NO *If no, please answer one of the following:*

a. If original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. national(s)?

[ ] YES [ ] NO If no, give name of country

b. If original rights to variety were owned by a company(ies), is(are) the original owner(s) a U.S. based company?

[ ] YES [ ] NO If no, give name of country

11. Additional explanation on ownership *(if needed, use reverse for extra space)*:

TAES policy and handbook manual provide that all germplasm and varieties developed by its employees in the course of their duties are owned by TAES. A copy of this policy is provided for your records.

PLEASE NOTE:

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.

2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.

3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to compete this information collection is estimated to average 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, and marital or familial status. (Not all prohibited bases apply to all programs). Persons with disabilities who require alternative means for communication of program information (braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, D.C. 20250, or call 1-800-245-6340 (voice) or (202) 720-1127 (TDD). USDA is an equal employment opportunity employer.