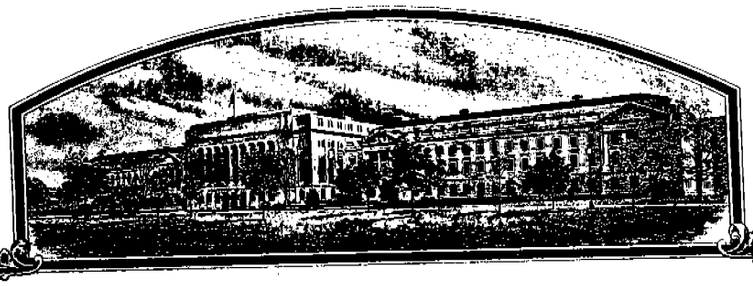

No. 7400035

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

McNair Seed Company

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED 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 seventeen 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 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 CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS ALLOWED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

TOBACCO

'McNair 944'

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 *this* 18th *day of* March *in the year of our Lord one thousand nine hundred and* seventy-seven

Attest:

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

Secretary of Agriculture

FORM GR-470
(12-15-72)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

FORM APPROVED
OMB NO. 40-R3712

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

1. VARIETY NAME OR TEMPORARY DESIGNATION McNair 944	2. KIND NAME Tobacco	FOR OFFICIAL USE ONLY PV NUMBER 7400035
3. GENUS AND SPECIES NAME Nicotiana tabacum L.	4. FAMILY NAME *(Botanical)* Solanaceae	FILING DATE 11.15.73 / TIME 10:00 A.M.
	5. DATE OF DETERMINATION December 6, 1972	FEE RECEIVED $ 250.00 / $ 250.00 / $ 250.00 / BALANCE DUE $ — / $ — / $ —
6. NAME OF APPLICANT(S) McNair Seed Company	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)* P. O. Box 706 Laurinburg, North Carolina 28352	8. TELEPHONE AREA CODE AND NUMBER 919 276-0733

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)* Corporation	10. STATE OF INCORPORATION North Carolina	11. DATE OF INCORPORATION 11-1-47

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:

Send all papers to corporate address above.

13. **CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:**

- [X] 13A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
- [X] 13B. Exhibit B, Botanical Description of the Variety
- [X] 13C. Exhibit C, Objective Description of the Variety
- [X] 13D. Exhibit D, Data Indicative of Novelty
- [X] 13E. Exhibit E, Statement of the Basis of Applicant's Ownership

3/17/77

14A. Does the applicant(s) specify that seed of this variety be sold by variety name only as a class of certified seed? *(See Section 83(a). (If "Yes," answer 14B and 14C below.)* [X] YES [ ] NO

14B. Does the applicant(s) specify that this variety be limited as to number of generations? [X] YES [ ] NO

14C. If "Yes," to 14B, how many generations of production beyond breeder seed? [X] FOUNDATION [X] REGISTERED [X] CERTIFIED

The applicant declares that a viable sample of basic seed of this variety will be deposited upon request before issuance of a certificate and will be replenished periodically in accordance with such regulations as may be applicable.

The undersigned applicant(s) of this sexually-reproduced novel plant variety believes that the variety is distinct, uniform, and stable as required in Section 41 and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant is informed that false representation herein can jeopardize protection and result in penalties.

(DATE)

Nov 12, 1973
(DATE)

McNAIR SEED COMPANY
(SIGNATURE OF APPLICANT)

by E. Herbert Graves Jr. Pres.
(SIGNATURE OF APPLICANT)

00001

RECEIVED NOV 15 1973 AMS, GRAIN DIV. PVPO

INSTRUCTIONS

GENERAL: Send an original copy of the application, exhibits and $250.00 fee to U.S. Dept. of Agriculture, Agricultural Marketing Service, Grain Division, 6525 Belcrest Road, Hyattsville, Maryland 20782. (See Section 180.175 of the regulations and rules of practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

5 Insert the date the applicant determined that he had a new variety based on the definition in Section 41 (a) of the Act and decision is made to increase the seed.

13a First, give the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method. Second, give the details of subsequent stages of selection and multiplication. Third, indicate the type and frequency of variants during reproduction and multiplication and state how these variants may be identified. Fourth, provide evidence on stability.

13b First, give any special characteristics of the seed and of the plant as it passes through the seedling stage, flowering stage and the fruiting stage. Second, describe the mature plant and compare it with a similar commercial variety grown under the same conditions, and indicate the differences.

13c A supplemental form will be furnished by the PVPO to describe in detail a variety for each kind of seed.

13d Provide complete data indicative of novelty. Seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty may be submitted. Seeds submitted may be sterile.

13e Indicate whether applicant is the actual breeder, the employer of the breeder, the owner through purchase or inheritance, etc.

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13 A. Exhibit A. Origin and Breeding History of McNair 944

This variety was selected from a segregating progeny resulting from a cross of McNair 30 and Speight G-10. The pure-line method of breeding was used.

This material was selected and evaluated on a single plant-to-row basis until the F_8 generation at which time plants on the chosen row were combined for testing by the Flue-Cured Tobacco Evaluation Committee. No variants have been observed subsequent to first entry in the Regional Tests in 1970.

The fact that no segregation was observed by the Flue-Cured Tobacco Evaluation Committee during three years of tests (1970-72) is considered to be evidence that the variety is stable.

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13 B. Exhibit B. Botanical Description of McNair 944

This variety has no special or distinguishing features of the seed or in the seedling and subsequent growing stages.

McNair 944 as a variety is relatively short when compared to N.C. 95. The 1972 topping height was 39 inches, while N.C. 95 was 41. It has moderately long leaves, averaging slightly longer than N.C. 95 over a two year period at mid-stalk (23.1 vs 23.0). The tip leaves are somewhat longer than N.C. 95, as leaves on McNair 944 are practically the same length from mid-stalk to the tips. The leaf width can be termed medium as McNair 944 leaves are slightly narrower than N.C. 95 at the mid-stalk position and slightly wider at the tips. This variety flowers at 60 days - N.C. 95 at 60.5 days.

FORM GR-470-31
(12-16-74)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

OBJECTIVE DESCRIPTION OF VARIETY

Tobacco (Nicotiana tabacum)

NAME OF APPLICANT(S)

McNAIR SEED COMPANY

ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code)

P.O. Box 706
Laurinburg, North Carolina 28352

VARIETY NAME OR TEMPORARY DESIGNATION

McNair 944

FOR OFFICIAL USE ONLY

PVPO NUMBER

7400035

Place the appropriate number that describes the varietal character 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. CLASS:

[1] 1 = FLUE-CURED 2 = FIRE-CURED 3 = AIR-CURED 4 = CIGAR FILLER 5 = CIGAR BINDER 6 = CIGAR WRAPPER
7 = MISCELLANEOUS-DOMESTIC 8 = FOREIGN-CIGAR LEAF 9 = FOREIGN-NON-CIGAR LEAF

[ ] AIR-CURED: 1 = BURLEY 2 = MARYLAND 3 = DARK AIR-CURED

STANDARD VARIETIES

01 = NC 95 02 = NC 2326 03 = COKER 319 04 = HICKS 05 = SPEIGHT G-28 06 = SC 58
07 = Ky 151 08 = BURLEY 21 09 = BURLEY 49 10 = Ky 10 11 = MARYLAND 609 12 = Ky 165
13 = Pennbel 69 14 = HAVANA 503 15 = FLORIDA 17 16 = OTHER

2. MATURITY (Transplant to 50% plants 1 Fl.) (Select code from Standard Varieties listed above)

[0|6|0] NO. OF DAYS

[0|1] DAYS EARLIER THAN . . . [0|3]
[0|2] DAYS LATER THAN . . . . . [0|2]

3. SEEDING TO TRANSPLANTING (Select code from Standard Varieties listed above)

[4|8] NO. OF DAYS

[0|5] DAYS EARLIER THAN . . . [0|1]
[|] DAYS LATER THAN . . . . [|]

4. PLANT HEIGHT (After topping) (Select code from Standard Varieties listed above)

[0|9|9] CM TALL

[0|3] CM SHORTER THAN . . . . . [0|3]
[0|8] CM TALLER THAN . . . . . [0|5]

5. LEAF SIZE (At leaf maturity) (Select code from Standard Varieties listed above)

LENGTH

[5|1|0] CM 5TH LEAF
[1|0] CM SHORTER THAN . . . . . [0|3]
[2|0] CM LONGER THAN . . . . . [0|5]

[5|8|0] CM 10TH LEAF
[3|0] CM SHORTER THAN . . . . [0|3]
[2|0] CM LONGER THAN . . . . . [0|5]

[5|8|0] CM 15TH LEAF
[1|0] CM SHORTER THAN . . [0|3]
[3|0] CM LONGER THAN . . . [0|5]

WIDTH

[2|0|0] CM 5TH LEAF
[2|0] CM NARROWER THAN . . . [0|1]
[|] CM WIDER THAN . . . . . [|]

[2|5|0] CM 10TH LEAF
[3|0] CM NARROWER THAN . . . [0|1]
[|] CM WIDER THAN . . . . . [|]

[3|1|0] CM 15TH LEAF
[|] CM NARROWER THAN [|]
[1|0] CM WIDER THAN . . . . [0|1]

6. LEAF YIELD (Select code from Standard Varieties listed above)

[2|7|1|4] KG/HA [|] % LESS THAN . . . . . [|] [2|9] % MORE THAN . . . . . [0|1]

88 12

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 PV # 7400035 McNAIR 944

13. DISEASE (0 = Not tested, 1 = Susceptible, 2 = Resistant)

0	POTATO VIRUS Y	1	TMV
0	NEMATODE ROOT ROT (LESION, SPECIES)	1	ROOT KNOT NEMATODE
0	TOBACCO ETCH VIRUS	0	OZONE AIR POLLUTION
	OTHER (Specify)		OTHER (Specify)

NOTE: Under 16 "Comments", give comparative reaction with a standard variety appropriate for each disease tested and indicate if disease reaction of the variety exceeds, equals or is less than that of the standard).

14. LEAF CONSTITUENTS (Give data for described and standard variety):

VARIETY	NICOTINE %	NOR NICOTINE %	TOTAL NITROGEN %	REDUCING SUGARS % (FLUE-CURED)
SUBMITTED	3.69	.30	2.32	1.589
STANDARD	3.64	.25	2.20	1.432
NAME OF STANDARD VARIETY	01	01	01	01

15. VARIETIES MOST CLOSELY RESEMBLING THAT DESCRIBED FOR THE CHARACTERS GIVEN:

CHARACTER	VARIETY	CHARACTER	VARIETY
MATURITY	03	LEAF TIP SHAPE	02
LEAF LENGTH	03	VENATION PATTERN	03
LEAF WIDTH	01	LEAF SURFACE	02
LEAF CARRIAGE	01	LEAF MARGIN	02
PETIOLE ANGLE	02	LEAF COLOR	01
LEAF SHAPE	02	PLANT FORM	01

16. COMMENTS (For increasing accuracy of description)

3. Seeding to transplanting - these data were obtained in the greenhouse and will differ "significantly" from data taken from normal cultural practices.

16. Black shank - more resistance than N.C. 95
Fusarium wilt - less resistance than N.C. 95
Bacterial wilt - less resistance than N.C. 95

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13D. Data Indicative of Novelty.

McNair 944 most nearly resembles Coker 319. It can be distinguished from Coker 319 by its resistance to black shank. McNair 944 being resistant and Coker 319 susceptible. McNair 944 also is earlier to flower, is shorter, has fewer leaves which are wider and shorter than Coker 319.

 PV 7400035 MC NAIR 944

GROUPING: **STANDARD VARIETIES**

01 = NC 95	02 = NC 2326	03 = COKER 319	04 = HICKS	05 = SPEIGHT G-28	06 = SC 58
07 = Ky 151	08 = BURLEY 21	09 = BURLEY 49	10 = Ky 10	11 = MARYLAND 609	12 = Ky 165
13 = Pennbel 69	14 = HAVANA 503	15 = FLORIDA 17	16 = OTHER _____		

7. LEAF NUMBER (Select code from Standard Varieties listed above)

TOPPED NORMAL:

[1 8 0] NO. PER PLANT

[1 9 0] NO. OF LEAVES > 40.6 CM [1 0 8] CM HEIGHT OF LAST LEAF > 40.6 CM

NOT TOPPED:

[2 0 0] NO. OF LEAVES OR NODES TO "CROWFOOD" FROM 1ST HARVESTABLE LEAF

8. INTERNODES (Topped) (Select code from Standard Varieties listed above)

[5 7] MM LENGTH [0 2] MM SHORTER THAN ..... [0 1] [0 4] MM LONGER THAN..... [0 5]

9. LEAF CHARACTERISTICS:

PETIOLE ANGLE:

[3 2] DEGREES [1] GROUPING: 1 = < 35° 2 = 35–45° 3 = 46–65° 4 = > 65°

LEAF CARRIAGE

[2] 1 = ARCHED (DROOPING) 2 = HORIZONTAL 3 = UPRIGHT

LEAF COLOR (At topping or when 50% of plants with 1 flower)

[2] 1 = LIGHT GREEN 2 = GREEN 3 = DARK GREEN 4 = YELLOW–GREEN 5 = YELLOW

LEAF SHAPE:

[3] 1 = BROADER THAN LONG 2 = LENGTH EQUALS WIDTH 3 = LONGER THAN BROAD

[2] 1 = BROADEST AT MIDDLE 2 = BELOW MIDDLE 3 = ABOVE MIDDLE

TIP SHAPE

[2] 1 = ACUTE 2 = ACUMINATE 3 = OBTUSE

VENATION PATTERN:

[2] 1 = SQUARE 2 = ANGULAR

LEAF SURFACE

[1] 1 = SMOOTH (HICKS) 2 = PUCKERED (NC 95)

LEAF MARGIN

[1] 1 = WAVY 2 = NOT WAVY

[2] 1 = RECURVED 2 = NOT RECURVED

10. FLOWERS:

[2] COLOR: 1 = WHITE 2 = PINK 3 = RED 4 = OTHER _____

FLOWER HEAD HABIT:

[2] 1 = CLOSED (NC 95) 2 = INTERMEDIATE 3 = OPEN (HICKS)

11. PLANT FORM

[2] 1 = PYRAMIDAL 2 = COLUMNAR 3 = OTHER (Specify) _____

12. GROUND SUCKERS:

[1 3] NO. PER PLANT

13. DISEASE (0 = Not tested, 1 = Susceptible, 2 = Resistant)

[2]	BLACK SHANK (RACES) Race 0	[1 ~~2~~]	FUSARIUM WILT (NICOTIANA)
[1]	BLACK ROOT ROT	[0]	FUSARIUM WILT (BATATAS)
[0]	BLUE MOLD	[0]	FROGEYE
[0]	WILDFIRE (SPECIES) _____	[1]	BROWN SPOT
[0]	BLACKFIRE	[2]	BACTERIAL WILT

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13 D. Exhibit D. Data Indicative of Novelty of McNair 944

As most current tobacco varieties are somewhat similar and under some conditions are difficult to identify from the morphological aspects of plant type, the novelty of McNair 944 can best be described in terms of agronomic performance and disease resistance in combination with some aspects of plant type.

McNair 944 is susceptible to the root knot nematode. Thus, it is readily distinguishable from such varieties as: Speight G-28, Coker 347, N.C. 95, N.C. 88, Speight G-140, and others in the resistant group.

Of the popular root-knot susceptible varieties, Coker 319 is the variety that most resembles McNair 944 in plant type and field appearance. However, some differences exist in such things as plant height, number of leaves, and leaf size and are listed in the table below:

Variety	Plant Ht. (in.)	Leaf #	Days to Flower	Leaf Width (in.) 5th	10th	15th	Leaf Length (in.) 5th	10th	15th
Coker 319	40	18.1	61	8	9.9	11.7	20.5	24.1	23.3
McNair 944	39	17.4	60	7.9	10.0	12.1	20.1	23.0	22.8

(Data from N.C. Exp. Sta. Report No. 44. 1972. Measured Crop Performance Tobacco)

The greatest difference between McNair 944 and Coker 319 is in reaction to the black shank fungus. The data from tests carried out by the Tobacco Disease Evaluation Committee in 1971 and 1972 indicate a % loss of 10.7 for McNair 944 and a 35.5% loss for Coker 319.

TABLE I. These data were collected and compiled by the Regional Disease Committee - A sub-committee of the Flue-cured Tobacco Quality Committee - Varieties; which functions under the auspices of the Tobacco Workers Conference.

PERCENT LOSS
BLACK SHANK

1975

	Variety	GA	SC	NC	AVE.
1.	NC2326	100.0	35.5	60.7	65.4
2.	NC95	95.7	63.0	31.3	63.3
3.	Coker 319	83.0	46.9	60.0	63.3
4.	Coker 411	85.7	18.5	21.1	41.8
5.	McNair 944	81.7	22.3	27.0	43.7
6.	Sp. G28	76.3	22.0	14.6	37.6
7.	Coker 347	96.7	48.5	39.7	61.6
8.	Va115	100.0	48.8	35.0	61.3

1974

	Variety	GA	SC	NC	AVE.
1.	NC236	94.3	41.2	29.1	54.9
2.	NC95	98.7	49.4	29.9	59.3
3.	Coker 319	98.3	47.6	3.2	49.7
4.	Coker 411	96.0	13.9	4.8	38.2
5.	McNair 944	66.7	3.3	19.8	29.9
6.	Sp. G28	62.7	27.4	6.0	32.0
7.	Coker 347	97.0	38.9	10.6	48.8
8.	Va115	65.3	55.9	18.2	46.7

1973

	Variety	GA	SC	NC	AVE.
1.	NC236	51	26	57	44.7
2.	NC95	59	28	69	52.0
3.	Coker 319	26	5	43	24.7
4.	Coker 411	20	11	51	27.3
5.	McNair 944	6	3	47	18.7
6.	Sp. G28	10	19	23	17.3
7.	Coker 347	59	14	54	42.3
8.	Va115	--	35	62	48.5

1972

	Variety	GA	SC	NC	AVE.
1.	NC236				43
2.	NC95				25
3.	Coker 319				47
4.	Coker 411				23
5.	McNair 944				12
6.	Sp. G28				16
7.	Coker 347				30
8.	Va115				34

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TABLE I. continued

	Variety	1975 %	1975 Rank	1974 %	1974 Rank	1973 %	1973 Rank	1972 %	1972 Rank	% Ave.	Rank
1.	NC2326	65.4	8	54.9	7	44.7	6	43	7	52.0	8
2.	NC95	63.3	7	59.3	8	52.0	8	25	4	49.9	7
3.	Coker 319	63.3	6	49.7	6	24.7	3	47	8	46.2	5
4.	Coker 411	41.8	2	38.2	3	27.3	4	23	3	32.6	3
5.	McNair 944	43.7	3	29.9	1	18.7	2	12	1	26.1	2
6.	Sp. G28	37.6	1	32.0	2	17.3	1	16	2	25.7	1
7.	Coker 347	61.6	5	48.8	5	42.3	5	30	5	45.7	4
8.	Val15	61.3	4	46.7	4	48.5	7	34	6	47.6	6

	SUMS OF RANKS				RANK	SUM
Variety #1	17	19	26	32	8	94
#2	7	25	27	31	7	90
#3	6	21	24	30	5	81
#4	5	8	14	15	3	42
#5	1	4	9	18	2	32
#6	2	3	11	13	1	29
#7	10	16	23	29	4	78
#8	12	20	22	28	6	82

$$ER's = \frac{39934}{4} = 9983.5$$

$$H = \frac{12}{32(33)} \quad 9983.5 = 99$$

1056 - Kurskal Wallis

9884.5

$$H = 111.69$$

$$X^2_{.0005(7)} = 20.3$$

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TABLE II. These data were collected and compiled by the Regional Disease Committee - A sub-committee of the Flue-cured Tobacco Quality Committee - Varieties; which functions under the auspices of the Tobacco Workers Conference.

Chemical Comparisons - McNair 944 & Coker 319

%NICOTINE	1975	1974	1973	1972
McNair 944	3.45	2.94	2.99	3.69 *
Coker 319	3.23	2.90	2.85	3.17
Sign	+	+	+	+
%SUGAR				
McNair 944	13.46 **	17.46	16.48 **	15.89
Coker 319	11.09	16.23	13.99	14.18
Sign	+	+	+	+

Sign test statistic with 8 + signs out of 8 gives a probability of 0.004 that the two varieties are equal.

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13 E. Exhibit E. Statement of Basis of Applicant's Ownership

McNair 944 is the property of McNair Seed Company. It was developed by William E. Earley, who was employed by McNair Seed Company as tobacco breeder during the period of development of this variety. All costs of development were paid by McNair Seed Company.