



TABLE OF CONTENTS

University of Tennessee Agricultural Experiment Station

E11-7315-00-001-84

STACKS

1983 Milan Experiment Station Research Report

Research Report 84-05

March, 1984

AGE-VET. MED. LIBRARY

APR 10 1984

UNIV. OF TENN.

John F. Bradley, Coordinator



Milan Experiment Station

TABLE OF CONTENTS

	Page
FOREWORD.....	1
COOPERATORS.....	2
NO-TILL RESEARCH.....	3
SOYBEANS.....	3
Cyst Nematodes - Populations - No-Till Conditions.....	3
Nematicides - Application - No-Till Conditions.....	4
Disease	5
Foliar Disease - No-Till Conditions - Severity & Yield.....	5
Seedling Disease - No-Till Conditions - Seed Treatment.....	6
Foliar Disease and Insects - No-Till Conditions.....	7
Variety.....	8
Variety Trials - No-Till in Wheat Stubble.....	8
Varieties Interseeded in Wheat, Three Dates.....	9
Interseeding in Wheat - Row Spacing Study.....	10
Interseeding in Green Wheat - Dates.....	11
Wheat Tillage Methods.....	12
Wheat Row Spacing Study.....	13
Fertility Research.....	14
Weed Control.....	15
Grass Control in No-Till Soybeans.....	15
Preemergence Broadleaf Control in No-Till Soybeans.....	16
New Preemergence Herbicides for No-Till Soybeans.....	17
Johnsongrass Control in No-Till Soybeans.....	18
Postemergence Broadleaf Control - No-Till Soybeans.....	19
Systems for Weed Control in No-Till Soybeans.....	20
Post-Directed Sprayer Performance in No-Till Soybeans.....	21
Preemergence Chemical Application in No-Till Soybeans.....	22
Postemergence Chemical Application in No-Till Soybeans.....	23
No-Till Planter Evaluation.....	24
Evaluation of Buffalo All-Flex Planter.....	25
Soil & Nutrient Loss.....	26
Runoff and Soil Loss From Five Cropping/Tillage Systems.....	27
Yields Cropping/Tillage System - 1980-1983.....	28
No-Till Station Summary 1983.....	29
No-Till Station Summary 1971-83.....	30
No-Till vs. Conventional 1979-1983.....	31
WHEAT (No-Till).....	32
Disease No-Till vs. Conventional Yield.....	32
No-Till Wheat vs. Conventional at Five Rates of N.....	33
Phosphate-Potash Effects on Wheat No-Till.....	34
Wild Garlic Control in No-Till Wheat.....	35
Overtop Herbicide Evaluation.....	36
No-Till Wheat Seeding Rates.....	37
CORN (No-Till).....	38
Herbicide Evaluation in No-Till Corn.....	38
N Rates, Sources & Placement.....	39
N Rates, Sources & Placement on High Phosphate Soils.....	40

	Page
CORN (cont.)	
Effects of Starter Fertilizers on No-Till Corn.....	41
Reseeding Legumes for No-Till Corn.....	42
Reseeding Legume Cover Crop for Corn.....	43
Cover Crops for Corn.....	44
Phosphorus Fertilizer of Corn Tillage, Rates & Placement.....	45
GRAIN SORGHUM (No-Till).....	46
Weed Control in No-Till.....	46
Cover Crops for Grain Sorghum.....	47
COTTON (No-Till).....	48
Effects of Cover, N Rates and Tillage on Cotton Yield & Maturity.....	48
Lint Yield of 8 Cotton Varieties No-Till - McNair 235 Conventional Planted.....	49
Yield and Other Characteristics * Cotton Varieties No-Till - McNair 235 Conventional Planted.....	50
CONVENTIONAL SEEDBED PREPARATION & CULTIVATION RESEARCH.....	51
SOYBEANS.....	51
Varieties.....	51
Yields of Early Maturing Soybean Varieties.....	51
Yields of Maturity Group V.....	52
Yields of Maturity Group VI & VII.....	53
Advanced Yield Trial of Experimental Lines.....	54
Intermediate Yield Trial of Experimental Lines.....	55
Conventional Planted Yield by MES Fields.....	56
Two Varieties Drilled at Different Seeding Rates.....	57
Dyer County - Soil Types.....	58
Diseases.....	59
Soybean Fungicide - Molybdenum Combination Treatments.....	59
Potash and Soybean Foliar Fungicides.....	60
Molybdenum & Soybean Foliar Fungicides.....	61
Potash & Soybean Foliar Fungicides.....	62
Varietal Reaction to Soybean Foliar Fungicides.....	63
Row Spacing & Soybean Foliar Fungicides.....	64
Fertility.....	65
Effects of Row Spacing, Variety & Nitrogen - Essex.....	65
Effects of Row Spacing, Variety & Nitrogen - Asgrow 5474.....	66
Effects of Row Spacing, Variety & Nitrogen - Forrest.....	67
Effects of Row Spacing, Variety & Nitrogen - Pioneer 5482	68
Effects of Row Spacing, Variety & Nitrogen - Mitchell.....	69
Effects of Row Spacing, Variety & Nitrogen - Centennial.....	70
High Yield Soybeans - Fertility - Variety.....	71
Effects of Phosphate & Potash.....	72
Fertilizer Rates & Placement.....	73
Weed Control.....	74
Electrostatic Spray Application - Postemergence Grass Control.....	74
Sicklepod Control - Soybeans, Corn & Cotton.....	75
Insects.....	76
Chemical Control of the Bean Leaf Beetle.....	76
WHEAT.....	77
Variety - Trials - Yields.....	77
Variety Characteristics.....	78
Variety Virus Disease & Cold Injury Ratings.....	79
Methods of Harvesting Wheat.....	80

	Page
WHEAT (cont.)	
Annual Ryegrass Control in Wheat.....	81
Control of Italian (Annual) Ryegrass in Wheat - Hoelon.....	82
Wild Garlic Control in Wheat.....	83
Foliar Fungicides - Disease Control.....	84
Fungicide Seed Treatments - Wheat.....	85
Nitrogen Levels on Two Wheat Varieites.....	86
Effect of Nitrogen Source & Rate on Wheat Fields.....	87
Phosphorus Fertilization of Wheat.....	88
Wheel Tract Study.....	89
CORN.....	90
Fertility - Nitrogen Rates & Time of Application - Corn.....	90
Urea Surface Applied vs. Incorporation.....	91
Variety - Medium-Season Variety Test.....	92
Variety - Yield & Other Characteristics.....	93
Thiocarbamate Herbicides - Johnsongrass Control.....	94
GRAIN SORGHUM.....	95
Grain Sorghum Yields and Other Characteristics.....	95
Yield of Grain Sorghum - Furadan.....	96
Co-op Varieties Evaluated.....	97
Grain Sorghum Row Spacing at Three Planting Dates.....	98
Nitrogen Fertilizer of Grain Sorghum.....	99
COTTON.....	100
Lint Yield of Hybrid Cottons.....	100
Lint Quality of Hybrid Cottons.....	101
Lint Yield and Other Characteristics - AST.....	102
Soil Fungicides for Cotton Seedling Disease Control.....	103
Pix Plant Growth Regulator & Boll Rot Control.....	104
Reaction of Cotton Varieties to Verticillium Wilt.....	105
Plant Growth Regulator & Defoliants.....	106
NON-CROP LAND	107
Trumpet creeper - Control With Soybean Herbicides.....	107
Trumpet creeper Control with Roundup & SC-0224.....	108
Trumpet creeper Control - Non Crop Land.....	109
Trumpet creeper Suppression With Paraquat.....	110
ENERGY & EQUIPMENT INPUTS.....	
Energy Inputs to Implements.....	111-112
STATION WEATHER INFORMATION.....	113-116

FOREWORD

1983 ANNUAL RESEARCH REPORT

THE UNIVERSITY OF TENNESSEE

MILAN EXPERIMENT STATION

MILAN, TENNESSEE

The station presents the following report of experiments conducted during 1983, with averages of past years where pertinent. The data contained in this report is not for general distribution or publication without written permission of the project leader or leaders involved. Some of the varieties, farming practices, chemicals, etc., used in the experiments are not labeled or recommended by the University of Tennessee. The information given herein is supplied with the understanding that no discrimination is intended and no endorsement made by the University of Tennessee

ACKNOWLEDGEMENTS

The Superintendent is grateful to the administration, researchers, and station staff for their splendid cooperation in supplying data, guidance and patience to make this report possible. He is also grateful to the late Tom C. McCutchen and his years of dedicated service for making the Milan Experiment Station a leader in no-till research.

STATION STAFF

John F. Bradley - Superintendent
Don Gibson - Foreman
Peggy McCutchen - Secretary
Darrell Warren - Senior Fieldman
Darol Copley - Senior Fieldman
Will Curry - Fieldman
Randy Walls - Fieldman

COOPERATING DEPARTMENTS

The University of Tennessee
Institute of Agriculture
W. W. Armistead - Vice-President For Agriculture

Agricultural Experiment Station
D. M. Gossett - Dean
T. J. Whatley - Associate Dean
J. I. Sewell - Assistant Dean

DEPARTMENTS

Plant and Soil Science

L. F. Seatz, Head
F. L. Allen
B. N. Duck
C. R. Graves
B. R. Hathcock
R. M. Hayes
P. E. Hoskinson
D. D. Howard
L. S. Jeffery
W. A. Krueger
G. M. Lessman
J. R. Overton
W. L. Parks
V. H. Reich
D. D. Tyler
J. D. Wolt

Entomology and Plant Pathology

C. J. Southards, Head
A. Y. Chambers
H. E. Reed
G. L. Lentz

Agricultural Engineering

D. H. Luttrell, Head
C. H. Shelton
F. D. Tompkins

The Milan Experiment Station acknowledges the technical assistance and support of graduate students and technical support personnel from other experiment stations.

EFFECTS OF MINIMUM OR REDUCED TILLAGE ON POPULATION
LEVELS AND INJURY BY THE SOYBEAN CYST NEMATODE

Milan Experiment Station, Milan, TN - 1983

Albert Y. Chambers

Treatment	Cysts/pt.		Yield, bu./A.	
	6/29	11/9	Wheat	Soybeans
Soybeans, 40-in. rows, conventional tillage; no wheat in winter	96 a ¹	252 a ¹	---	16.7 a ¹
Soybeans, 40-in. rows, conventional tillage; wheat double-ropped, conventional tillage	115 a	173 ab	43.2 a ¹	16.9 a
Soybeans, 40-in. rows, conventional tillage wheat double-cropped, no-till planting	92 a	131 ab	27.1 c	16.3 a
Soybeans, 20-in. rows, no-till planting; wheat double-cropped, conventional tillage	96 a	90 b	41.5 ab	13.6 ab
Soybeans, 20-in. rows, no-till planting; wheat double-cropped, no-till planting	81 a	65 b	31.9 bc	10.1 b
LSD (0.01)	ns	ns	ns	5.3
(0.05)	ns	51	10.4	3.9
(0.10)	ns	42	8.6	3.2

Essex soybean variety planted in single-crop planting June 3 and in double-crop plantings June 25; Arthur wheat variety planted in no-till plantings and conventional plantings October 28, 1982; in conventional plantings, soil was prepared, and soybeans were planted in 40" rows with a 4-row planter while wheat was planted with a grain drill; in no-till plots, soybeans were planted with a no-till planter into wheat stubble and wheat was planted with a no-till Tye drill into soybean stubble; wheat harvested June 24, yields converted to 13.5% moisture; plots sampled for nematode cyst counts at the dates shown by taking 20 cores (1") of soil 6" deep at random in center rows of each plot; soybeans harvested October 6 (single-crop) and October 27 (double-crop), yields converted to 13% moisture; plots 13 1/3 x 60 ft.; 6 replications; randomized complete block design; Loring silt loam soil (soybeans and wheat-soybeans, 1980-82) tested as follows from sample taken December 1, 1982: pH - 6.5, P - H (40), and K - M (140); fertilization consisted of 30-60-60 at planting and 70 lb./A. of N topdressed on February 18 on wheat; Lasso (2 qt./A.) + Lorox (0.5 qt./A.) and Basagran + Blazer (1 pt. + 1 pt./A.) applied June 3 and 29 for weed control in single-crop soybeans while Roundup + Sencor + Dual and Basagran + Blazer at 1 pt. + 1 pt./A. applied June 29 and July 25 in double-crop plantings.

¹Mean figures followed by the same small letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).

APPLICATION OF NEMATICIDES IN NO-TILL SOYBEANS FOR CYST NEMATODE CONTROL

Milan Experiment Station, Milan, Tennessee - 1983

Albert Y. Chambers

Treatment	Cysts/pt.		Yield, bu./A.
	7/5	11/1	
No nematicide treatment	30 b ¹	10 b ¹	21.0 a ¹
Temik 15G, 2 lb. ai/A.	18 b	28 b	21.6 a
Soilbrom-90, 4.5 gal./A.	30 b	53 a	21.9 a
Furadan 15G, 2 lb. ai/A.	68 a	18 b	22.1 a
LSD (0.01)	ns	33	ns
(0.05)	30	23	ns
(0.10)	25	19	ns

Essex variety planted July 5 in 20-in. rows in undisturbed wheat stubble (combined June 24) with a John Deere 7100 planter; 4 rows 40" apart were planted with the planter and then 4 rows were planted in the center of the middles between the first rows to get 20" rows; Temik and Furadan applied to seed furrow at planting with granular applicators mounted on planter; Soilbrom-90 injected broadcast immediately before planting with a hand-operated fumigun; soil samples for nematode cyst counts taken from 4 center rows of each plot on dates shown, each sample consisted of 20 cores (1") taken 6" deep; harvested October 27, yields converted to 13% moisture; plots 8 rows (20") x 55 ft.; 5 replications; randomized complete block design; Loring silt loam soil (wheat-soybeans, 1980-82) tested as follows from sample taken December 1, 1982: pH - 6.5, P - H (40), and K - M (140); no fertilizer applied for soybeans, 30-60-60 applied at planting and 70 lb./A. of N topdressed February 18 on wheat; Roundup + Sencor + Dual and Basagran + Blazer at 1 pt. + 1 pt./A. applied for weed control.

¹Mean figures followed by the same small letter do not differ significantly (P= 0.05, Duncan's New Multiple Range Test).

EFFECTS OF MINIMUM OR REDUCED TILLAGE ON INCIDENCE
AND SEVERITY OF SOYBEAN FOLIAR DISEASES

Disease Severity and Yield

Milan Experiment Station, Milan, Tennessee - 1983

Albert Y. Chambers

Treatment	Disease Ratings			Yield, Bu./A.	
	Leaf	Pod	Stem	Wheat	Soybeans
Soybeans, 40-in. rows, conventional planting; no wheat in winter	7.9 a ¹	7.8 a ¹	6.3 c ¹	---	10 b ¹
Soybeans, 40-in. rows, conventional planting; wheat double-cropped, conventional planting	5.2 b	5.3 c	5.3 d	45 a ¹	12 ab
Soybeans, 40-in. rows, conventional planting wheat double-cropped; no-till planting	5.4 b	5.8 b	6.0 c	41 ab	14 a
Soybeans, 20-in. rows, no-till planting; wheat double-cropped, conventional planting	3.6 c	4.0 d	7.3 a	37 b	7 c
Soybeans, 20-in. rows, no-till planting; wheat double-cropped, no-till planting	2.7 d	3.3 e	6.8 b	23 c	10 b
LSD 1%	0.7	0.4	0.5	7	4
5%	0.5	0.3	0.4	5	3
10%	0.4	0.2	0.3	4	2

Essex soybean variety planted in single-crop planting June 3 and in double-crop plantings July 5; Arthur wheat variety planted in no-till and conventional plantings October 28, 1982; in conventional plantings, soil was prepared, and soybeans were planted in 40" rows with a 4-row planter while wheat was planted with a grain drill; in no-till plots, soybeans were planted with a no-till planter into wheat stubble while wheat was planted with a no-till drill into soybean stubble; wheat harvested June 22, yields converted to 13.5% moisture; soybean leaf disease ratings (brown spot) made October 4 using rating scale of 0 to 9 with 0 being no apparent symptoms and 9 being most severe injury; soybeans harvested October 6 (conventional) and 29 (no-till), yields converted to 13% moisture; pod and stem disease ratings (anthracnose) made October 28 (scale for ratings as above); plots 13 1/3 x 60 ft.; 6 replications; randomized complete block design; Grenada silt loam soil (wheat-soybeans, 1980-82) tested as follows from sample taken December 1, 1982: pH - 6.5, P - H (40), and K - M (140); fertilization consisted of 30-60-60 applied broadcast on all plots and disked in on conventional wheat and single-crop soybean plots (10/28/82) and 70 lb. of N/A. topdressed on wheat February 18; Basagran + Blazer (1 pt. + 1 pt./A.) applied July 26 for weed control.

¹Mean figures followed by the same small letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).

SOYBEAN SEED TREATMENT IN NO-TILL PLANTING

Milan Experiment Station, Milan, TN - 1983

Albert Y. Chambers

Treatment	Stand count, 100 ft. of row	Vigor rating	Yield, bu./A.
Untreated check	175 c ¹	8.78 d ¹	9.6 b ¹
Vitavax 200-FF, 4 fl. oz./cwt.	299 ab	9.22 ab	12.6 ab
Captan 400-D, 2 fl. oz./cwt.			
+ Apron FF, 0.75 fl. oz./cwt.	293 ab	9.44 a	14.5 a
Vitavax 200-FF, 3.3 fl. oz./cwt.			
+ Apron FF, 0.75 fl. oz./cwt.	322 a	9.22 ab	13.1 ab
Epic-Apron FF, 3 fl. oz./cwt.	292 ab	9.16 bc	14.4 a
Triple-Noctin L, 4 fl. oz./bu.	202 bc	8.96 c	10.5 ab
Vitavax-M, 6 fl. oz./bu.	131 c	8.86 d	9.5 b
LSD 1%	129	0.32	ns
5%	95	0.24	3.8
10%	79	0.19	3.1

Vitavax 200-FF, Captan 400-D + Apron FF, Vitavax 200-FF + Apron FF, and Epic-Apron FF were applied as conventional seed treatments on May 19; Triple-Noctin L and Vitavax-M were applied as hopper-box pour-on treatments.

Essex variety; planted June 27; seeding rate, 60 lb./A.; plots 8 rows (20") x 50 ft.; 5 replications; randomized complete block design; stand counts made August 19 (center 2 rows of plot counted); plots rated for vigor on August 19 (rated from 0 to 10 with 0 being dead and 10 being most vigorous); harvested October 27, yields converted to 13% moisture; Loring silt loam soil (wheat-soybeans, 1980-82) tested as follows from sample taken December 1, 1982: pH - 6.5, P - H (40), and K - M (140); no fertilizer applied; Roundup + Sencor + Dual (June 29) and Basagran + Blazer at 1 pt. + 1 pt./A. (July 26) applied for weed control.

¹Mean figures followed by the same letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).

- / -
EFFECTS OF NO-TILLAGE AND MINIMUM-TILLAGE ON
INSECTS AND DISEASES OF SOYBEANS AND WHEAT

Milan Experiment Station, Milan, TN - 1983

G. L. Lentz and A. Y. Chambers

Tillage Treatment	Disease Ratings			Yield, Bu./A.	
	Leaf	Pod	Stem	Wheat	Soybeans
Soybeans, 40-in. rows, conventional planting; no wheat in winter	7.7	6.0	6.5	---	21.6 a ¹
Soybeans, 20-in. rows, conventional planting; no wheat in winter	6.6	6.0	7.0	---	22.5 a
Soybeans, 40-in. rows, conventional planting; wheat double-cropped, conventional planting	5.0	4.0	5.0	68.3 a ¹	17.2 b
Soybeans, 20-in. rows, conventional planting; wheat double-cropped, conventional planting	4.0	4.0	6.0	68.3 a	19.4 ab
Soybeans, 40-in. rows, conventional planting; wheat double-cropped, no-till planting	---	---	---	---	---
Soybeans, 20-in. rows, conventional planting; wheat double-cropped, no-till planting	---	---	---	---	---
Soybeans, 20-in. rows, no-till planting; wheat double-cropped, conventional planting	3.5	2.5	7.0	69.6 a	16.4 a
Soybeans, 20-in. rows, no-till planting; wheat double-cropped, no-till planting	---	---	---	---	---
LSD 1%	-	-	-	ns	ns
5%	-	-	-	ns	4.0
10%	-	-	-	ns	3.3

Essex soybean variety planted June 4 (single-crop plantings) and July 7 (double-crop plantings); McNair 1003 wheat variety planted on whole plot area November 10, 1982, single-crop soybean plots disked to eliminate wheat April 27; plots 80 x 80 ft.; 5 replications; randomized complete block design; wheat harvested July 15, 13.5% moisture; soybeans harvested October 6 (single-crop) and 27 (double-crop), 13% moisture, leaf ratings (brown spot) made October 4 and 14 using 0 to 9 rating scale (0 = no apparent symptoms and 9 = most severe injury); pod and stem ratings (anthracnose) made at harvest using 0 to 9 scale; Routon silt loam soil (soybeans-wheat only-soybeans, 1980-82) tested as follows from sample taken August 13, 1982: pH - 6.3, P - H (40), and K - L (70); fertilization consisted of 30-120-80 and 46-0-0 applied on wheat; sprayed wheat with 2,4-D March 14; applied Basalin (2X) + Sencor (0.38 lb./A.) and Basagran + Blazer (1 pt. + 1 pt./A.) for weed control in single-crop June 4 and 29 and Treflan (1 1/2 pt./A.) in conventional and Bronco (5 qt./A.) in no-till double-crop plots July 7; Roundup rope-wicked August 26.

¹Mean figures followed by the same small letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).

H-414-MES-21

Soybean variety no-till after wheat harvest.

Nine soybean varieties grown no-till
in wheat stubble at Milan in 1983.

Variety	Yield Bu/A	Plant ht. in.	Date mature
Bedford	17.6	32	10-22
Essex	17.8	23	10-15
Forrest	18.6	27	10-18
Centennial	18.2	30	11-7
Nathan	17.6	30	10-15
Bay	20.7	23	10-15
V-77-2016	20.0	24	10-18
Pioneer 5482	21.8	26	10-18
Asgrow A5474	20.0	28	10-15
L.S.D. (.05)	N.S.		
C.V.	14.6		
Avg.	19.1		

11414-MES-27-21 (Time of seeding)
Two soybean varieties interseeded in wheat
at Milan on three planting dates in 1983.

Variety	Seeding date	Wheat yield Bu/A
Asgrow A5474	at heading	21.8
	2 weeks after heading	19.2
	3 weeks after heading	23.2
	no-till after wheat harvest	25.1
	L.S.D. (.05)	N.S.
	C.V. %	18.4
	Avg.	22.3
Pioneer 5482	at heading	18.0
	2 weeks after heading	19.9
	3 weeks after heading	18.9
	no-till after wheat harvest	16.6
	L.S.D. (.05)	N.S.
	C.V. %	24.9
	Avg.	18.4

Table . Wheat yields from wheat row spacing-soybean no-till study conducted at Milan in 1983.

Treatments	Spacing between rows in.	Wheat yields Bu/A	Date headed	Plant ht. in.	Date mature
Traffic	7	30.5	5-6		6-15
Traffic	14	28.9	5-6		6-15
Traffic	20	28.4	5-6		6-15
7 inches with 14 inch wheel track		34.9	5-6		6-15
No-Traffic (check)	7	46.6	5-6		6-15
	L.S.D. (.05)	5.0			
	C.V. %	9.6			
	Avg.	33.8			

Interseeded soybeans 5-6-83

H-414-MES-21-27

Dates of Interseeded Soybeans in Green Wheat at Milan in 1983.

Treatments Dates Interseeded Beans in wheat.	Wheat Yields	
	Asgrow A5474	Pioneer 5482
	Bushels per acre	
5-6 (at heading)	40.8	38.2
5-25	28.1	29.2
5-30	24.2	25.8
6-22 (No-till in wheat stubble)	50.4	50.5
L.S.D. (.05)	9.7	3.8
C.V. %	16.8	6.7
Avg.	35.9	35.9

Table . Wheat grown by several tillage methods at Milan in 1982 and 1983.

Treatments	Avg. yield	1983	1982
	Bushels per acre		
Disc only - Drill wheat	49.4	54.7	44.1
Broadcast seed and Fert.-Disc in	47.8	48.9	46.6
Disc-Chisel-Disc-&Drill wheat	48.8	55.5	42.2
Disc-Turn-Disc & Drill wheat	49.0	55.8	42.2
Aerial seed wheat in soybeans ^{1/}	36.8	37.5	36.0
Drill wheat no-till in soybean stubble	50.2	54.5	46.0
L.S.D. (.05)		5.7	5.5
C.V. %		8.5	8.4
Avg.		51.1	43.2

^{1/} Wheat seeded in September when soybean plants were maturing and before soybean leaves fell to the ground.

Seeding Rate:

Aerial Seeding 2 bu/A
Broadcast "
No-Till Drill "
All other treatments 1½ bu/A

Table . Characteristics of wheat grown by several tillage methods at Milan in 1983.

Treatments	Yield Bu/A	Plant ht.	Date headed	Date mature
		in.		
Disc only-Drill wheat	54.7	36	5-6	6-15
Broadcast seed & Fert.-Disc in	48.9	35	5-6	6-15
Disc-Chisel-Disc-&Drill wheat	55.5	36	5-6	6-15
Disc-Turn-Disc and Drill wheat	55.8	36	5-6	6-15
Aerial seed wheat in soybeans	37.5	29	5-3	6-10
Drill wheat no-till in soybean stubble	54.5	32	5-6	6-15

H-414-MES-27-1
Wheat Row Spacing Study at Milan
in 1983

Treatments	Treat.	1	2	3	4	Avg.
	No. & Reps.					
Broadcast	001	63.8	61.1	67.4	64.0	64.1
7" rows	002	63.0	63.0	68.4	65.2	64.9
10" rows	003	62.2	60.2	51.5	60.0	58.5
14" rows	004	51.7	54.9	51.1	62.6	55.1
20" rows	005	41.0	45.7	39.9	45.0	42.9
L.S.D. =						5.9
C.V. =						6.7
Avg. =						57.1

Wheat variety: Coker 747.

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK.

Treatment	Rate lb/A ai	% Control 7-19-83 ^{1/} Lacg	% Control 10-28-83 ^{1/} Lacg	Soybean Yield Bu/A
1. Lasso 4E + Lorox 4L + Paraquat + X-77	2.5 + 1.0 + .5%	96 a	99 a	11.8
2. Lasso 4E + Sencor 4L + Paraquat + X-77	2.5 + .5 + .5%	67 b	90 a	12.4
3. SD95481 7E + Lorox 4L + Paraquat + X-77	.5 + 1.0 + .5%	96 a	97 a	10.5
4. SD95481 7E + Sencor 4L + Paraquat + X-77	.5 + .5 + .5%	90 a	98 a	9.6
5. SD95481 7E + Lorox 4L + Paraquat + X-77	.75 + 1.0 + .5%	94 a	99 a	15.2
6. SD95481 7E + Sencor 4L + Paraquat + X-77	.75 + .5 + .5%	97 a	99 a	9.1
7. SD95481 7E + Paraquat + X-77	.75 + .5%	90 a	99 a	8.1
8. SD95481 7E + Paraquat + X-77	1.0 + .5%	86 a	95 a	8.0
9. Prowl + Sencor + Paraquat + X-77	1.0 + .5 + .5%	93 a	99 a	9.8
10. Paraquat + X-77	.5 + .5%	41 b	70 b	7.0
		CV = 15%	CV = 16%	CV = 34%
				N.S.

Asgrow 5474 planted and treated on June 24. Sprayed with Basagran at 1½ pt/A on July 21.

Soil type: Loring silt loam

No crop injury was observed.

^{1/}Values within a column followed by the same letter(s) are not significantly different at the 5% level according to Duncan's New Multiple Range Test.

Evaluation of Herbicides for Preemergence Broadleaf Control in No-Till Soybeans. MES, 1983.
H-692-83-MES-S-2

Treatment	Rate lb/A ai	% Injury or Control ^{1/} 7-19-83			Soybean Yield ^{1/} Bu/A
		CIR	Cocb	Lacg	
11. PPG 1013 1E + Paraquat + X-77	0.1 + .5	1	71	79 b	10.0 c
12. PPG 1013 1E + Paraquat + X-77	0.2 + .5	5	88	93 a	11.6 abc
13. PPG 1013 1E + Paraquat + X-77	0.3 + .5	4	89	95 a	10.8 bc
14. PPG 844 2E + Paraquat + X-77	.25 + .5	1	88	94 a	10.9 bc
15. PPG 1013 1E + Prowl 4E + Paraquat + X-77	.1 + 1 + .5	3	89	98 a	13.3 ab
16. PPG 1013 1E + Prowl 4E + Paraquat + X-77	.2 + 1 + .5	3	83	99 a	13.2 ab
17. PPG 1013 1E + Prowl 4E + Paraquat + X-77	.3 + 1 + .5	9	87	98 a	13.8 a
18. Prowl + Sencor + Paraquat + X-77	1 + .5 + .5	1	81	97 a	13.9 a
19. Prowl + Sencor + Paraquat + X-77	1.5 + .5 + .5	3	89	99 a	14.0 a
20. Prowl + Sencor + Paraquat + X-77	2.0 + .5 + .5	8	89	99 a	14.3 a
F(.05)		N.S.	N.S.		
		CV=100%	10%	6%	13.8%

Planted and treated Asgrow 5474 on June 24. Sprayed with 1½ pt/A Basagran on July 21.
Soil Type: Loring silt loam
Applied with CO₂ sprayer in 18 gpa.

^{1/}Values within a column followed by the same letter are not significantly different at 5% level according to Duncan's New Multiple Range Test.

Soil type: Loring silt loam
Applied with CO₂ sprayer in 18 gpa.

		-----% Control or Injury ^{1/} -----							
		7-19-83				7-28-83			
Treatment	Rate lb/A ai	CIR	Cocb	Pesw	Lacg	CIR	Cocb	Pesw	Lacg
21. HOE 39866 (1.67S) +	.75 +								
Dual 8E + Sencor DF	2.0 + .5	8 cde	55 d	99	98 a	8 cd	13 b	99	97 ab
22. HOE 39866 (1.67S) +	1.0 +								
Dual 8E + Sencor DF	2.0 + .5	4 de	59 cd	99	99 a	0 d	5 b	99	99 ab
23. Brominol ME4 +	.38 +								
Sencor DF	.5	3 e	70 cd	98	92 b	0 d	13 b	94	94 ab
24. Bronco 4 + Sencor DF	4 + .5	1 e	78 bc	99	99 a	0 d	21 b	99	98 ab
25. AC252,214 DF + Prowl +	.125 + 1 +								
Paraquat + X-77	.5	13 abc	99 a	96	99 a	5 d	74 a	90	99 ab
26. AC252,214 DF + Prowl +	.25 + 1 +								
Paraquat + X-77	.5	19 ab	99 a	99	99 a	21 ab	99 a	100	100 a
27. AC252,214 DF + Prowl +	.38 + 1								
Paraquat + X-77	.5	20 a	99 a	100	99 a	29 a	100 a	100	99 ab
28. DPXF 6025 + Lasso +	.03 + 2.5 +								
Paraquat + X-77	.5	9 cde	91 ab	93	98 a	0 d	65 a	93	92 b
29. DPXF 6025 + Lasso +	.06 + 2.5 +								
Paraquat + X-77	.5	11 bcd	93 ab	97	97 a	13 bcd	73 a	82	93 ab
30. DPXF 6025 + Lasso +	.125 + 2.5								
Paraquat + X-77	+ .5	13 abc	97 ab	99	96 ab	20 abc	71 a	98	93 ab
		NS				NS			
		CV = 48% CV = 15% CV = 5% CV = 3% CV =88% CV= 50% CV=14% CV=5%							

Asgrow 5474 planted and treated on June 24. 8 - 20" rows replicated 4 times in a RCB design.

Loring silt loam, 1.1% organic matter

^{1/}Values within a column within a column followed by the same letter(s) are not significantly different at P = 0.05 according to Duncan's New Multiple Range Test.

Johnsongrass Control in No-Till Soybeans, Milan Experiment Station, Milan. 1983
H-692-83-MES-S-4

Treatment ^{1/}	Rate lb/A ai	Johnsongrass ^{2/} Control		Soybean Yield ^{2/} Bu/A
		7-27	8-17	
31. Poast (1.53E) + C.O.C.	.28	94 a	69 ab	6.0 ab
32. Fusilade 4E + C.O.C.	.25	88 a	38 c	3.5 cd
33. Whip (1E)	.15	94 a	41 c	3.8 bcd
34. Dowco 453 (4E)	.12	87 a	54 bc	3.8 bcd
35. DPXY 6202	.12	93 a	86 a	7.1 a
36. CGA 82725 (2E)	.5	94 a	81 a	6.6 a
37. SC 1084 (2E)	.5	91 a	71 ab	4.7 abc
38. Roundup (Ropewick)	1:2	54 b	69 ab	2.1 d
39. Poast + AC252,214	.3 + .25	88 a	53 bc	4.7 abc
40. Control	-	0 c	0 d	2.3 d
		C.V. = 21%	C.V. = 11%	C.V. = 33%

Asgrow 5474 planted on June 24. Entire experiment treated with Paraquat + X-77 at 0.5 lb/A ai + 5%

Treated: July 14

^{1/}Retreated with $\frac{1}{2}$ rate on 8-17-83 except tmt 38 and 40.

^{2/}Values within a column not followed by same letter are not significantly different at 5% level according to Duncan's New Multiple Range Test.

Postemergence Broadleaf Weed Control in No-Till Soybeans
Milan Experiment Station, 1983

		-----% Control or Injury-----				Soybean
		7-18		7-28		Yield
Treatment ^{1/}	Rate lb/A ai	CIR	Cocb	CIR	Cocb	Bu/A
41. Blazer	.5	28 a ^{2/}	96 ab ^{2/}	6 bcde ^{2/}	90 a ^{2/}	14.4 ab ^{2/}
42. Basagran	.75	0 e	99 a	1 de	99 a	13.1 abc
43. Basagran + Blazer	.5 + .25	11 bcd	99 a	5 bcde	99 a	14.1 ab
44. AC 252,214 + Tween 20	.125 + .25%	8 cde	35 d	14 bc	98 a	13.2 abc
45. DPX F6025	.007	15 bc	30 d	15 b	95 a	12.7 bc
46. Flex 2LC +AG98	.25 + .25%	3 de	90 b	0 e	94 a	15.3 a
47. PPG 844 2E	.15	15 bc	80 c	3 cde	63 b	11.3 cd
48. RH4091 + AG98	.4	30 a	99 a	13 bcd	99 a	14.3 ab
49. Tackle 2S + X-77	.5 + .5%	31 a	99 a	13 bcd	98 a	14.9 ab
50. Basagran + 2,4-DB	.75 + .03	9 cde	99 a	33 a	100 a	15.2 ab
51. Blazer + 2,4-DB	.5 + .03	19 b	95 ab	34 a	94 a	13.3 abc
52. Check	-	0 c	0 e	0 e	0 c	8.4 d
		CV = 43%	CV = 6%	CV = 63%	CV = 11%	CV = 11.7%

^{1/}Entire experiment treated with Roundup at 2 qts/A on June 24.

Variety: Asgrow 5474

Planted: June 24

Treated: July 14

Plot size: 8 - 20" rows x 30'

Soil type: Loring silt loam

Fertilization:

^{2/}Values within a column followed by the same letter(s) are not significantly different at P = 0.05 according to Duncan's New Multiple Range Test.

% CONTROL OR INJURY^{1/}

H-692-M-NT-5

Systems for Weed Control in No-till Soybean, Milan Experiment Sta., 1983

7-18

Soybean Yield Bu/A Cost of Treatment \$/A

Treatment	Rate lb/A at	Cocb	Pesw	Lacg	R. Jojr	S. Jojr	Gogr	Yusg	CIR	7-27 Jojr	Gogr	Soybean Yield Bu/A	Cost of Treatment \$/A
1. Paraquat + X-77 + Prowl + Blazer + 2,4-Gd	.25 + .25% + 1 .25 + .03	70	82	65	25 etj	70	65	94	16 a	18 bc	53 bc	4.5	19.81
2. Paraquat + X-77 + Prowl + Metribuzin	.38 + .5% + 1 + .5	66	93	96	76 a-d	94	95	95	3 c	48 abc	83 ab	6.8	25.31
3. Paraquat + X-77 + Prowl + Basagran	.38 + .5% + 1 + .75	43	78	68	29 d-g	89	71	94	0 c	13 bc	37 c	4.5	28.48
4. Paraquat + X-77 + Prowl + Blazer	.38 + .5% + 1 + .5	40	68	69	23 fg	79	71	95	15 ab	3d abc	61 abc	4.0	30.90
5. Paraquat + X-77 + Prowl + Basagran + Blazer	.38 + .5% + 1 .5 + .25	46	63	80	10 g	79	78	93	1 c	10 c	69 abc	3.5	32.03
6. Paraquat + X-77 + Prowl + Metribuzin + Basagran	.38 + .5% + 1 + .5 .75	72	98	95	66 a-f	95	95	98	0 c	33 abc	93 ab	6.9	36.18
7. Paraquat + X-77 + Prowl + Metribuzin + Blazer	.38 + .5% + 1 + .5 .5	91	97	97	73 a-e	94	95	97	10 abc	53 abc	97 a	8.5	41.79
8. Paraquat + X-77 + Prowl + Metribuzin + Basagran	.38 + .5% + 1 + .5 .75	90	95	97	65 a-f	75	96	97	0 c	18 bc	96 ab	8.7	41.87
9. Paraquat + X-77 + Prowl + Metribuzin + Basagran + Blazer	.38 + .5% + 1 + .5 .5 + .25	72	96	86	41 a-g	47	88	97	3 c	33 abc	71 abc	4.0	42.92
10. Roundup + Prowl + Basagran + Blazer	1 + 1 + .5 + .25	73	99	95	48 a-g	93	93	95	5 bc	40 abc	90 ab	5.0	42.92
11. Paraquat + X-77 + Basagran + Blazer + Poast or Fusilade + C.O.C.	.38 + .5% + .5 + .25 X + 1 qt/A	68	50	95	69 a-f	91	93	97	6 abc	77 a	99 a	6.3	46.60
12. Bronco + Metribuzin + Basagran	4 + .5 + .75												
13. Paraquat + X-77 + Prowl + Basagran + Blazer + Poast or Fusilade + C.O.C.	.38 + .5% + 1 + .5 + .5 + .25 + X + 1 qt/A	97	98	97	86 ab	97	98	98	0 c	45 abc	96 ab	5.1	51.75
14. Paraquat + X-77 + Metribuzin + Basagran + Poast or Fusilade + C.O.C.	.38 + .5% + .5 + .75 X + 1 qt/A	43	62	73	36 c-g	66	86	71	5 bc	18 bc	73 abc	6.6	52.47
15. Roundup + Basagran + Blazer + Poast or Fusilade + C.O.C.	1 + .5 + .25 X + 1 qt/A	70	95	79	38 b-g	66	76	94	0 c	15 bc	61 abc	5.8	53.94
16. Roundup + Prowl + Basagran + Blazer + Poast or Fusilade + C.O.C.	1 + 1 + .5 + .25 X + 1 qt/A	69	96	91	66 a-f	76	94	96	0 c	43 abc	93 ab	9.6	57.49
17. Bronco + Metribuzin + Basagran + Poast or Fusilade + C.O.C.	4 + .5 + .75 X + 1 qt/A	79	93	95	71 a-f	90	94	95	4 c	50 abc	92 ab	10.4	63.36
18. Bronco + Metribuzin + Basagran + Blazer + Poast or Fusilade + C.O.C.	4 + .5 + .5 + .25 X + 1 qt/A	56	96	97	89 a	95	97	94	0 c	41 abc	87 ab	8.4	72.19
		79	96	97	81 abc	97	97	96	6 abc	58 ab	96 ab	10.6	75.74
		NS	NS	NS		NS	NS	NS					

CV=53% CV=27% CV=21% CV=53% CV=27% CV=19% CV=12% CV=156% CV=76% CV=32% CV=37%

LSD .05 = 3.5

Variety: Asgrow 5474

Planted: June 24

Plot size: 8-20 rows by 30'

Design: RCB

Treated: Pre's on June 24; Poast on Tmt 11 on 7-14. All post GI tmt on 7-18.

Fertilization:

^{1/} Values within a column followed by the same letter(s) are not significantly different at 5% level according to Duncan's New Multiple Range Test.
^{2/} Local cost of herbicides in June in West Tennessee and does not include cost of application.

Post-Directed Sprayer Performance in No-till Soybeans in 20-inch Rows,
Milan Experiment Station, 1983

F. D. Tompkins, W. E. Hart, R. M. Hayes, L. R. Wilhelm, J. B. Wilkerson

Sprayer*	Crop Injury Rating 7-28	Weed Control (%) 7-28		Yield (bu/ac) 10-26
		Cocklebur	Large Crabgrass	
CKL	10	85	40	8.9
CHH	9	85	40	8.6
CSN	14	80	40	8.1
EUT	20	88	40	8.5
FJR	41	85	40	7.0
CBR	30	83	40	7.8
NONE	0	0	0	5.7

*Lorox + 2,4-DB (0.5 + 0.2 lb ai/ac) applied July 21.

Preemergence Chemical Application in No-till Soybeans, Milan Experiment Station, 1983

F. D. Tompkins, W. E. Hart, R. M. Hayes, L. R. Wilhelm, J. B. Wilkerson

Application 6-30	Weed Control (%) 7-17		Yield (bu/ac) 10-28
	Large Crabgrass	Pennsylvania Smartweed	
Paraquat + Lorox + Lasso			
1. Control (20 gpa)	92	97	9.5
2. Low volume flat fan + oil (4 gpa)	50	73	8.8
3. CDA (4 gpa)	70	85	10.2
4. Low volume flat fan (4 gpa)	67	87	10.4
5. CDA + oil (4 gpa)	70	85	10.3
Roundup + Loxox + Lasso			
6. Control (20 gpa)	98	100	4.4
7. DAA (4 gpa)	98	100	4.0
8. Low volume flat fan + oil (4 gpa)	98	100	4.9
9. Low volume flat fan (4 gpa)	93	76	4.5
10. CDA + oil (4 gpa)	94	98	6.0

Postemergence Chemical Application in No-till Soybeans, Milan Experiment Station, 1983

F. D. Tompkins, W. E. Hart, R. M. Hayes, L. R. Wilhelm, J. B. Wilkerson

Application 7-12, 13	Crop Injury Rating 7-17	Weed Control (%)			Yield (bu/ac) 10-26
		7-17	7-28		
		Pennsylvania Smart Weed	Pennsylvania Smart Weed	Cocklebur	
Basagran + Blazer (1 pt + 1 pt)					
1. Control (20 gpa)	17	60	82	95	12.1
2. Low volume flat fan (4 gpa)	10	33	70	95	10.3
3. CDA (4 gpa)	17	48	77	95	9.3
4. Low volume flat fan + oil (4 gpa)	12	27	50	73	10.2
5. CDA + oil (4 gpa)	27	57	70	94	11.4
Basagran + Blazer (1/2 pt + 1/2 pt)					
6. Control (20 gpa)	17	58	63	90	12.9
7. Low volume flat fan (4 gpa)	17	70	70	93	10.9
8. CDA (4 gpa)	17	27	37	63	14.0
9. Low volume flat fan + oil (4 gpa)	30	73	80	95	12.1
10. CDA + oil (4 gpa)	10	62	67	75	11.7

No-Tillage Planter Evaluation

D. E. Bell, F. D. Tompkins

One commercial no-tillage row-crop planter was used to seed soybeans in wheat stubble at the Milan Experiment Station in 1983, and data related to its performance was collected.

Planter Description

Buffalo All-Flex planter with plateless seed metering.

Row spacing of 20 inches.

6 rows equipped with 18-inch diameter smooth coulters with welded depth bands to allow soil penetration to a depth of 3-5 inches. A 21-inch long slot shoe set to follow in the beveled coulters edge to open a slot for seed placement. Three 10-inch diameter 1-inch wide zero pressure presswheels for seed covering. First presswheel vertical following directly over seed furrow with the next set to press the furrow walls by offsetting it 1 inch to the side of the furrow and tilting the wheel 20° from vertical. The last presswheel was set as a mirror image of the second wheel and set to trail 10 inches behind. The distance between the first and second presswheels was also 10 inches (center-to-center).

3-point hitch mounted with cast iron weights mounted on each coulter to increase ballast.

Plateless seed metering driven by the smooth coulter,

Figure I. Buffalo All-Flex Planter

Test Conditions

Operating speed - 4 mph.

Soubeans planted in 15-inch wheat stubble.

Soil type - Loring Silt Loam,

<u>Soil depth</u> <u>(in.)</u>	<u>Soil moisture</u> <u>by weight, dry basis (%)</u>
0-1	27.1
1-2	27.2
2-4	26.1
4-6	26.7

Test Results

<u>Sample</u>	<u>Seed Depth (in.)</u>			<u>Seed Spacing (in.)</u>			<u>Coefficient of Variation</u>		<u>Seeds Not Covered (%)</u>
	<u>Mean</u>	<u>Maximum</u>	<u>Minimum</u>	<u>Mean</u>	<u>Maximum</u>	<u>Minimum</u>	<u>Depth</u>	<u>Spacing</u>	
1	1.42	2.50	0.00	1.17	6.00	0.00	43.17	88.22	0
2	1.57	2.50	0.50	1.73	8.00	0.00	27.18	95.88	1
3	1.74	2.25	1.00	1.59	5.00	0.00	18.36	80.08	0
Overall	1.58	2.50	0.00	1.47	8.00	0.00	32.28	91.85	0

Remarks on Equipment Performance

Soil moisture levels were very high and caused problems with depth control and residue buildup on the slot shoe opener. Soil also collected on the depth bands of the smooth coulter and the presswheels.

Tables 2 and 3 show rainfall parameters, soil loss, and maximum sediment concentrations for simulated storms on June 8, 1983 and July 8, 1983, respectively.

Table 2. Rainfall, Maximum Sediment Concentration, and Soil Loss for Simulated Storm of June 8, 1983

System	Planting Date	Rainfall			Max. Sed. Conc. PPM	Soil Loss T/A
		In.	In./Hr.	R		
1. CTSC	6/3	3.80	3.80	102	104,616	13.70
2. NTDC	7/6	3.35	3.35	90	356	0.06
3. CDSC	6/3	2.72	2.72	78	79,146	12.65
4. CTDC	7/7	3.00	3.00	81	698	0.08
5. NTSC	5/12	3.50	3.50	94	398	0.06

Table 3. Rainfall, Maximum Sediment Concentration, and Soil Loss for Simulated Storm of July 8, 1983

System	Planting Date	Rainfall			Max. Sed. Conc. PPM	Soil Loss T/A
		In.	In./Hr.	R		
1. CTSC	6/3	2.77	3.69	74	132,144	9.37
2. NTDC	7/6	2.63	3.50	71	572	0.05
3. CDSC	6/3	2.55	3.39	68	89,604	5.57
4. CTDC	7/7	2.55	3.40	68	29,668	1.89
5. NTSC	5/12	2.97	3.96	80	98	0.006

In Table 2, the high soil losses for systems (1) and (3) were due to rain occurring only five days after planting. The lower soil loss for system (3) compared to system (1) is probably due to the lesser rainfall. Soil loss from system (4) was considerably greater on July 8 (Table 3) than on June 8 because the soil was prepared for seeding on July 7. Because of incorporated wheat residue on system (4), however, soil loss from the system was much less than that from systems (1) and (3) on the same date. Reduction in soil disturbance and increase in crop canopy probably account for reduction in soil loss from systems (1) and (3) on July 8 compared to June 8.

Maximum sediment concentration values are included in Tables 2 and 3 to indicate water quality aspects of soil erosion control. Not only are sediment concentration values greatest for the conventional tillage systems; related research has shown that most nutrients enter the water resource attached to sediment particles.

Crop yields from the five systems for the four years 1980-1983 are given in Table 4. The general reduction in yield for the conventional tillage systems (1, 3) from 1981 through 1983 might be due to reduction in soil productivity as result of erosion. While some reduction in productivity might have been masked by effects of simulated rainfall, no attempt was made to apply water at critical crop-stage periods. All 1983 yields were low due to adverse weather conditions; the double crop no-till system was least affected.

RUNOFF AND SOIL LOSS FROM FIVE CROPPING/TILLAGE SYSTEMS

Curtis H. Shelton

Runoff from natural and simulated rainfall on quarter-acre plots was measured and sampled to evaluate soil loss from five soybean-tillage systems. The tillage systems were: 1. conventional till, single crop (CTSC); 2. no till in wheat stubble, double crop (NTDC); 3. drilled, single crop (CDSC); 4. conventional till after wheat, double crop (CTDC); and 5. no till in soybean stubble, single crop (NTSC).

The best indicator of a storm's erosive potential is the product of its kinetic energy and maximum 30-minute intensity. This USLE rainfall erosion index (R) for West Tennessee is normally highest during the months April through July. Table 1 shows results of 12 storms (5 natural, 7 simulated) that occurred on the plots during the April-July periods of 1980-1983. Three storms are included for each of the four years. The importance of having a crop residue and/or canopy on the surface during periods of high-energy rainfall is indicated in the table. Soybean planting dates for systems 1, 3, and 5 were approximately May 15 each year, while systems 2 and 4 were planted about June 20 immediately after wheat harvest. Note that total rainfall erosion index (R), as well as total runoff, was essentially equal among all systems. Total soil loss from each of the two no-till systems (2, 5) was less than 2 percent of that from the single crop conventional-till system (1). Soil loss from the double cropped conventional-till system (4) was about 11 percent of that from system 1, while 8 percent more soil was lost from the single crop drilled system (3) than from system (1). Soil loss from system (1) ranked first six times, and that from system (3) ranked first five times. Soil loss from system (4) ranked first one time - eight days after cultivation.

Table 1. Rainfall, Runoff, and Soil Loss for 12 Storms
(April-July, 1980-1983)

System	Rainfall, R	Runoff, In.	Soil Loss, T/A
1. CTSC	660	13.2	37.3
2. NTDC	602	13.2	0.6
3. CDSC	660	11.7	40.5
4. CTDC	625	13.1	4.3
5. NTSC	710	13.9	0.7

Table 4. Yields from Cropping/Tillage Systems, 1980-1983
(bu-ac)

System	1980	1981	1982	1983
1. CTSC	20.8	46.0	31.3	13.3
2. NTDC	14.0	30.3/37.7*	34.7/34.0*	15.7/31.3*
3. DHSC	14.0	42.3	17.8	3.7
4. CTDC	18.0	26.3/40.0*	27.7/35.7*	9.3/37.0*
5. NTSS	6.1	39.3	27.0	5.3

*Wheat yield

NO-TILL PLANTED FIELDS

(20" Rows)

Milan - 1983

<u>Field No.</u>	<u>Acres</u>	<u>Variety</u>	<u>Soil Type</u>	<u>Planting Date</u>	<u>Yields</u>
N8	8.2	Asgrow 5474	Calloway & Henry	6/27	12.8
N46 & N47	3.9	Asgrow 5474	Loring	7/2	11.8
N29	6.0	Essex	Memphis	7/2	5.3
N25	4.0	Essex	Collins	7/2	11.5
N35 & N36	5.9	Pioneer 5482	Loring	7/2	6.8
N17 & N20	5.2	Asgrow	Collins	6/16	10.4
Total	33.2			Average	9.73

No. of no-till acres 33.2 = 9.73 bu./A,

SOYBEAN - NO-TILL SUMMARY
MILAN EXPERIMENT STATION
1971-83

YEAR	ACRES NO-TILL	PLANTING DATE	YIELD BU./A	ACRES CONV.	YIELD BU./A
1971	11	6/15-18	36	102	31
1972	28	6/14-17	24	77	20
1973	5	6/19	41	64	44
1974	28	6/20	28	63	37
1975	47	6/18-23	30	79	42
1976	82	6/14-22	27	87	43
1977	*47	4/20			
		7/5	24	86	35
1978	18	6/26	34	160	32
1979	59	6/14-16	42	105	40
1980	92	6/21-26	19	101	23
1981	56	6/10-24	38	84	40
1982	55	5/31-6/23	38	255*	40
1983	33.2	6/27-6/16	9.73	151.3	11.5
			Ave. 30		Ave. 34

* - Estimated due to extensive flood damage in creek bottoms.

1977 - 15 acres planted in previous years soybean stubble on 4/20.

All other No-Till 1971-82 planted in wheat stubble.

Conventional planted May 1 to June 1 except 1971 when 9 acres double crop
conventional planted 6/17.

Milan Experiment Station

1979-1983

Soybean Yields

<u>Year</u>	<u>Planting Methods</u>	
	No-Till	Conventional
1979	42 bu./A.	40 bu./A.
1980	19 bu./A.	23 bu./A.
1981	38 bu./A.	40 bu./A.
1982	38 bu./A.	40 bu./A.
1983	9.7 bu./A.	11.5 bu./A.

H-414-MES-27

No-till vs. conventional wheat disease study

1982-83

Variety	Wheat grown	
	No-Till	Conventional Seedbed
Bushels per acre		
Coker 747	30.8	40.9
McNair 1003	38.1	40.9
Caldwell	32.9	44.3
Southern Belle	30.9	36.5
L.S.D. (.05)	N.S.	N.S.
C.V. %	16.5	19.8
Avg.	33.2	40.6

Variety	No-Till			Conventional seedbed		
	Plant ht. in.	Date headed	Date mature	Plant ht. in.	Date headed	Date mature
Coker 747	32	5-8	6-8	31	5-8	6-6
McNair 1003	36	5-12	6-10	36	5-10	6-12
Caldwell	34	5-8	6-8	33	5-6	6-10
Southern Belle	30	5-6	6-6	28	5-6	6-8

Memphis silt loam

Seeded 10-23-82 at 1½ to 2 bu/A.

H-414-MES-27 1983

Wheat Yields

No-Till wheat vs. conventional seedbed
at five rates of N (1982-83).

Rates of N lbs/A	Replications						Wheat Yields Bu/Acre
no-till	1	2	3	4	5	6	Avg.
0	15.9	9.2	13.4	6.6	10.3	18.1	12.2
30	42.5	30.3	40.4	49.2	43.1	38.2	40.6
60	41.6	42.9	47.4	41.3	51.0	26.8	41.8
90	50.4	45.7	54.1	37.1	46.6	19.2	42.2
120	49.5	28.6	48.2	35.9	43.8	49.5	42.6
					L.S.D. (.05)		9.6
					C.V. %		22.2
					Avg.		35.9
conv.							
0	20.6	23.2	11.6	21.0	18.9	13.8	18.2
30	43.5	45.0	37.1	39.8	26.2	37.6	38.2
60	47.7	39.4	48.9	42.1	45.7	43.7	44.6
90	40.7	43.4	29.4	49.6	43.4	48.6	42.5
120	30.8	38.1	40.7	48.1	43.8	47.4	41.5
					L.S.D. (.05)		7.4
					C.V. %		17.0
					Avg.		36.3

Rate of N/A	Bu/A	
	No-till corn	
		Avg.
0	12.2	18.2
30	40.6	38.2
60	41.8	44.6
90	42.2	42.5
120	42.6	41.5

Phosphate-potash Effects on Wheat Yields
No-Till 1983

P ₂ O ₅ lbs/A	K ₂ O	Yield* bu./A.	Moisture %	Test wt lbs/bu
0	0	54.8 e	21.0 a	50.6 b
0	30	55.3 de	21.7 a	48.4 c
0	60	54.1 e	20.7 a	50.9 b
30	0	60.7 bcd	19.3 b	53.5 a
30	30	59.5 cde	18.6 bcd	53.8 a
30	60	63.9 abc	19.0 bc	53.7 a
60	0	65.1 abc	18.6 bcd	53.6 a
60	30	63.7 abc	18.2 bcd	54.2 a
60	60	60.8 bcd	17.7 cd	54.2 a
90	0	67.3 a	18.1 bcd	54.2 a
90	30	64.0 abc	18.3 bcd	54.0 a
90	60	65.9 ab	17.4 d	54.9 a

CV 6.6 4.5 2.8

LSD .05 5.0 1.1 1.8
.01 6.6 1.4 2.4

Lbs P ₂ O ₅	Yield bu/A	Test wt
0	54.8 c	50.0 b
30	61.3 b	53.6 a
60	63.2 ab	54.0 a
90	65.7 a	54.4 a

LBS K ₂ O		
0	61.9	52.9
30	61.2	52.6
60	60.6	53.4
	NS	NS

*60 lbs/bu (standard)

Loring silt loam

pH 6.5 P - L K - M

Date seeded:

Coker 747 at 1.5 bu/A

Fert in fall with 30 lbs N and in the spring with 45 lbs N
as ammonium nitrate.

Wild Garlic Control in No-Till Wheat. Milan Experiment Station, Milan, TN. 1983

Treatment ^a /	No. garlic bulblets/pt.	Wheat yield Bu/A	Soybean injury
1. EH540 4.85	.45	48	52
2. EH540 4.85	.6	9	51
3. Esteron 99 4E	.75	3	43
4. Esteron 99 4E	1.0	8	47
5. Esteron 99 4E + Glean 75W	.75 + .008	8	48
6. Esteron 99 4E + Glean 75W	.75 + .016	5	48
7. Esteron 99 4E + Glean 75W	.75 + .032	7	53
8. Check	--	58	53
9. Glean 75W	.016 ($\frac{1}{4}$ oz)	35	45
10. Glean 75W	.032 ($\frac{1}{2}$ oz)	56	49
11. Glean 75W	.064 (1 oz)	6	46
12. Glean 75W	.128 (2 oz)	7	51
F .10 = N.S. F .05 = N.S. CV = 12.6% CV = 112			

No-till "Asgrow A5474" soybeans planted on July 6 and treated with Bronco at 4 qts/A.

Treated: March 15, 1983 9:30 - 10:30 am
 Wind SE 4-6 mph
 Wheat fully tillered - FAO stage 4
 Temperature 76° F
 Sprayer - CO₂ 8003 tips, 40 psi; 4 mph, 16 gpa

^a/All treatments contain 0.5% X-77.

Evaluation of Surflan and Prowl when applied to wheat at the 2nd joint stage at Milan in 1983.

Treatments	Wheat yield Bu/A
Prowl 1.0# AI/A	40.7
Surflan 1.0# AI/A	36.9
Check same traffic or above	39.3
Check no traffic	41.3
L.S.D. (.05)	N.S.
C.V. %	15
Avg.	39.6

Wheat variety: Coker 747.

Table . Wheat seeded at several rates
in maturing soybeans at Milan
in 1983.

Seeding Rate	Yield	Date	Date
lbs/acre	Bu/A	headed	mature
60	35.0	4-29	6-6
90	35.1	4-29	6-6
120	40.0	4-29	6-6
180	43.2	4-29	6-6
L.S.D. (.05)	3.1		
C.V. %	5.1		
Avg.	38.3		

Treatment	Rate lb/A	Method	% Control ^{e/} 7-12-83				Yield ^{e/} Bu/A @ 15.5%
			Lacg	Howe	Cocb	Smpw	
1. Lasso + Aatrex 4L + Paraquat ^a	2 + 1.6 + 0.5	PE	87 ab	64 ab	86 ab	97 a	71.9 a
2. Bicep ^b 4.5F + Paraquat	3.6 + 0.5	PE	97 a	68 ab	70 b	98 a	68.4 a
3. (Aatrex 4L + Paraquat) + (Tandem 4E + Agridex)	(1.6 + 0.5) + (.5 + 1 qt)	PE + POE	76 ab	23 bc	86 ab	96 a	55.7 a
4. Bronco ^c 4E + Aatrex 4L	4 + 1.6	PE	75 ab	96 a	78 ab	84 a	59.9 a
5. Prowl 4E + Aatrex 4L + Paraquat	1 + 1.6 + 0.5	PE	97 a	72 ab	84 ab	98 a	58.3 a
6. Aatrex 4L + Paraquat	2 + 0.5	PE	67 ab	61 ab	95 a	98 a	71.3 a
7. Bladex 4L + Aatrex 4L + Paraquat 2S	1.5 + .75 + 0.5	PE	67 ab	72 ab	30 c	32 b	56.6 a
8. Bladex 4L + Aatrex 4L + Lasso 4E + Paraquat 2S	1.5 + .75 + 2 + 0.5	PE	88 ab	97 a	86 ab	82 a	67.0 a
9. (Lasso 4E + Paraquat 2S) + Aatrex 4L + Agridex ^d	(2 + 0.5) + 2 + 1 qt	PE + POE	94 a	92 a	99 a	99 a	77.5 a
10. (Lasso 4E + Paraquat 2S) + Basagran 4L + Agridex	(2 + 0.5) + .75 + 1 qt	PE + POE	23 c	73 a	99 a	80 a	54.6 a
11. (Paraquat 2S) + (Tandem 4E + Aatrex 4L + Agridex)	0.5 + 0.5 + 2 + 1 qt)	PE + POE	45 bc	70 ab	99 a	99 a	59.7 a
12. Paraquat 2S	0.5	PE	24 c	0 d	0 d	0 c	12.3 b
			C.V. = 38% C.V. = 50%				C.V. = 25%

^aTreatments with Paraquat also contained 2 qt Ortho X-77 Spreader Sticker per 100 gallons spray solution.

^bBicep 4.5F at 3.4 qt/A = Dual + Atrazine at 2 + 1.6 lb/A ai.

^cBronco 4E at 4 qt/A = Roundup + Lasso at 1.4 + 2.6 lb/A ai.

^dAgri-dex (80% nonphytotoxic crop oil and 20% nonionic surfactant).

Variety: Pioneer 3147

Planted: May 10

Treated: May 11 -PRE; POST June 9.

Plot size: 4 - 40" rows x 40'

3 - 40" rows x 40' treated trimmed to 30' long

^eValues within a column followed by the same letter(s) are not significantly different at the 5% level according to Duncan's New Multiple Range Test.

N RATES, SOURCES & PLACEMENT FOR NO-TILL CORN

SOURCE	PLACE	50	100	150	200
UAN	B *	15 C	31 DE	48 E	60 C
UAN	SB	25 BC	46 CD	64 CDE	68 BC
UAN	I	29 BC	57 C	85 AB	79 AB
UREA	B	19 C	41 CDE	50 DE	65 BC
UREA	SB	19 C	51 C	67 BCD	57 C
UREA	I	39 B	100 A	82 AB	65 BC
A.N.	B	20 C	48 CD	71 BC	70 BC
UUP	B	20 C	28 C	58 CDE	74 BC
UUP	SB	25 BC	43 CDE	70 BC	78 AB
A.A	I **	67 A	80 B	94 A	94 A
UAN	SB + SB			73 BC	
UAN	SB + I			70 BC	
UAN	I + I			84 AB	
0		10			

* B = Broadcast
 SB = Surface band
 I = Injected

**Andydrous ammonia was applied 27 days after planting
 The split applications of UAN were applied 27 days after planting

Soil type: Memphis silt loam
 pH - 6.1 P - H K - H
 Planted: April 26
 Row spacing: 30 inches

Nitrogen Sources, Rates & Method of Application
for No-Till Corn on High Phosphate Soils

<u>Source</u>	<u>Application Method*</u>	<u>lbs N/acre</u>	
		<u>100</u>	<u>150</u>
		-----bu/a-----	
A.N.	B	76.9	86.5
Urea	B	61.5	62.4
Urea	SB	54.0	64.4
UUP**	B	54.1	75.1
UUP	SB	71.6	65.6
Urea BP***	B	47.0	67.5
CV	15.3		
LSD	.05	14.6	20.7
	.01 Sources	19.6	rate 38.0

* B = Broadcast SB = Surface band

** Urea, urea-phosphate

***Big prill urea - from TVA

Effect of Starter Fertilizers on No-Till Corn 1983

N	Lbs/A		Yield bu/A
	P ₂ O ₅	K ₂ O	
10	30	10	88.5 A
10	0	0	89.2 A
10	30	0	92.3 A
0	30	0	86.3 A
30	30	0*	91.1 A
10	30	0**	90.6 A
10	30	10 + B***	87.8 A
0	0	0	77.7 B

* Urea-urea phosphate

** Urea phosphate plus H₃ PO₄

***Band application of 50 lbs P₂O₅ and 25 lbs K₂O

Main plots were rates of P & K broadcast.

Starter materials were applied in direct contact with the seed at planting.

Soil type: Loring silt loam

Planted: April 12

Variety: Pioneer 3147

Row width: 30 inches

pH 6.5 P - L K - M

Reseeding Legumes for No-Tillage Corn - MES
Don Tyler and Bob Duck

<u>Main plot</u>	<u>Split plot</u>					
Lbs N/Acre	Cover					Avg.
	No-cover	Wheat	Sub-clover	Crimson	BF vetch	
	-----Bu./A.-----					
0	42	15	43	49	67	30
50	81	41	46	62	91	64
100	87	51	57	43	89	65
150	102	68	57	73	86	77
200	96	71	50	60	87	73
Average	81	49	51	57	84	

Main plot - nitrogen rate** LSD 0.05 = 30 bu.

Split plot - cover** LSD 0.05 = 16 bu.

Interaction was highly significant

Data is one year's results in a very dry season. Corn was slower to emerge and exhibited slower early growth in the heavy mulches of wheat, sub-clover, and crimson clover. Poor growth of the big-flower resulted in much less residue and better early growth. Yields may reflect the earliness of maturity where less residue was present. This earlier maturity could have resulted in less yield depression from the severe drought.

Reseeding Legume Cover Crops for Corn
H540-MES-RL-C
Milan Experiment Station, 1982-83

Table 1: Dry matter production of cover species.

<u>Species-Variety</u>	<u>DM Yield,* lb/ac</u>
Bigflower Ve. - 'Woodford'	1590
Crimson Cl. - 'Tibbee'	3390
Sub Cl. - 'Mt. Barker'	2780
Wheat - 'Coker 747'	3600

*LSD (P = .05) = 439 lb/ac

Personnel: Don Tyler and Bob Duck
Site: Memphis silt loam, 3-5% stones
Soil test results (Aug. 1982): pH = 6.3; P = 12; K = 160
Planting of winter cover crops: 9/23/82
Dry matter productivity sampling of winter covers: 5/17/83
Herbicide application: 5/24 -- paraquat - 1 lb. a.i./ac
 surfactant - 0.5% v/v
 (application at 40 gpa - 40 psi)
 5/25 -- cyanazine - 2 lb a.i./ac
 alachlor - 2
 paraquat - 0.5
 surfactant - 0.5% v/v

Cover Crops for Corn
H566-MES-01
Milan Experiment Station, 1982-83

Table 1: Comparisons of cover species dry matter yields and subsequent corn grain yields

Cover Species-Var.	Mean DM Yld., lb/ac		Mean Grain Yld., bu/ac	
Arrowleaf Cl. - 'Amclo'	3210	b*	49.6	bc*
Bigflower Ve. - 'Woodford'	1380	d	56.2	bc
Crimson Cl. - 'Chief'	3000	b	53.5	bc
Crimson Cl. - 'Tibbee'	3910	a	49.6	bc
Hairy Vetch	1730	d	60.0	b
Red Clover - 'Kenstar'	1960	d	33.2	de
Roughpea	1720	d	63.6	ab
Sub Clover - 'Mt. Barker'	2600	c	53.9	bc
Winterpea - 'Austrian'	1660	d	57.1	bc
Wheat (+60 lb N)	1480	d	29.4	e
Wheat (+90 lb N)	1480	d	34.0	de
Wheat (+120 lb N)	1330	d	43.5	cd
Wheat (+150 lb N)	1800	d	74.4	a
No cover -- No N			22.5	e

* Means within a column followed by the same letter are not different
(P = .05, Duncan's Multiple Range test)

Personnel: Bob Duck and Don Tyler

Site: Loring and Grenada silt loams, 3-5% slopes

Soil test levels (Aug., 1982): pH = 5.8; P = 12; K = 180

Fertilization: Agricultural lime, 2.0 t/ac, Aug. 1982

0-80-80 broadcast 5/5/83

N rates on wheat cover plots -- ammonium nitrate, broadcast 5/3

Planting of winter cover treatments: 9/23/82, topseeded, broadcast, prepared seedbed

Productivity sampling of winter covers: 4/25-26/83

Killing of winter covers: 4/27; cyanazine - 1.6 lb ai/ac

alachlor - 2.0

paraquat - 0.75

surfactant - 0.5% v/v

volume/pressure - 40 gpa/40 psi

5/4; paraquat - 1.5 lb ai/ac

surfactant - 0.5% v/v

Planting of corn: O's Gold 3344 hybrid planted 4/29; replanted 5/27;

thinned to 20,000 ppa 6/20

Harvesting of corn: 9/14, combined

Planting of covers, 2nd cycle: 1st planting 9/26-29; 2nd planting 10/27-31

Phosphorus Fert. of Corn
Tillage, Rates & Placement
Milan - 1983

Donald D. Howard

Broadcast	Band Injected	Surface Band	Yield		
			Conv.	N-T	Avg.
-----lbs/A-----			-----Bu/A-----		
0	0	0	71.8	69.5	70.6
0	40	0	72.1	68.8	70.5
0	0	40	81.6	61.8	71.7
40	0	0	83.1	81.9	82.5
40	40	0	82.0	84.7	83.4
40	0	40	79.7	65.9	72.8
80	0	0	92.2	91.0	91.6
0	0	80	76.4	67.6	72.0
80	40	0	81.8	78.0	79.9
120	0	0	79.1	75.7	77.4
120	40	0	78.8	71.3	75.1
160	0	0	80.1	75.7	77.9

L.S.D. .01 16
.05 13

Conv. 79.9
N-T 74.3
Loring silt loam
pH 6.6
P - L
K - M
Row width - 40"
Planting date - April 29
Plant pop. - 14,800

	Treatment	Rate lb/A ai	% Control or Injury		Yield @ 14% ^{1/}
			CIR	Lacg ^{1/}	
			7-12-83		
1	Atrazine + Bronco	1.2 + 3 qt.	0	99 a	83 a
2	Milogard 4L + Paraquat	2.4 + 0.5	0	81 b	74 a
3	Dual + Aatrex (Bicep) + Paraquat + S	1.5 + 1.2 + 0.5	0	98 a	81 a
4	Dual + Milogard (Milocep) + Paraquat + S	1.5 + 1.2 + 0.5	5	97 a	77 a
5	Lasso + Atrazine + Paraquat + S	2.0 + 1.2 + 0.5	0	97 a	77 a
6	Prowl + Atrazine + Paraquat + S	1.0 + 1.2 + 0.5	3	98 a	80 a
7	Paraquat + (Atrazine + Tandem 4EC) Post	0.5 + (2.0 + 0.5)	13	95 a	74 a
8	Check + Paraquat + S	0.5	8	15 c CV = 14%	51 b

Variety: Funks G 522 DR Concept treated.

Planted: May 25

Treated: PRE - May 27; Post - June 9.

Plot size: 8 - 20" rows x 40' (6 - 20" rows treated)

Design: RBC with 4 reps

Soil type: Loring silt loam

100# N/A at planting, high P & K

^{1/} Values within a column followed by the same letter do not differ significantly at the 5% level according to Duncan's New Multiple Range Test.

Cover Crops for Grain Sorghum
H566-MES-02
Milan Experiment Station, 1982-83

Table 1: Comparison of sorghum grain yields following various winter cover crops.

<u>Cover Species-Variety</u>	<u>Mean Grain Yield., lb/ac</u>
Arrowleaf Cl. - 'Amclo'	3340 cd*
Bioflower Ve. - 'Woodford'	4180 ab
Crimson Cl. - 'Chief'	3580 bcd
Crimson Cl. - 'Tibbee'	3790 abc
Hairy Vetch	4100 abc
Red Cl. - 'Kenstar'	3370 cd
Roughpea	4410 a
Sub Cl. - 'Mt. Barker'	3320 cd
Winterpea - 'Austrian'	3860 abc
Wheat	1990 f
Wheat (+30 lb N)	2870 de
Wheat (+60 lb N)	3450 bcd
Wheat (+90 lb N)	4140 abc
Wheat (+120 lb N)	4590 a
No cover - No N	2390 ef

*Means followed by the same letter are not different
(P = .05, Duncan's Multiple Range test)

Personnel: Bob Duck and Don Tyler

Site: Loring and Grenada silt loams, 3-5% slopes

Soil test levels (Aug., 1982): pH = 6.0; P = 16; K = 160

Fertilization: agricultural lime, 2.0 t/ac, Aug. 1982

0-80-80 broadcast 6/9/83

N rates on wheat cover plots -- ammonium nitrate, broadcast 6/9

Planting of winter cover treatments: 9/23/82, topseeded, broadcast, prepared seedbed

Yield sampling of winter covers: 5/9-10/83

Herbicide applications: 5/11 -- 'Bicep' (Aatrex + Dual) - 2.4 qt/ac

paraquat - 1 lb a.i./ac

surfactant - 0.5% v/v

(applied at 40 ppa - 40 psi)

5/16 -- paraquat - 1.5 lb a.i./ac

surfactant - 0.5% v/v

Planting of grain sorghum (Funk's 522DR, 10 lb/ac): 5/25; replanted 6/6

Harvesting of grain sorghum: 9/15 (combine)

Planting of legumes (2nd cycle; no-till drill): 1st planting tmt. -- 9/26-29

2nd planting tmt. -- 10/27-31

Effect of Cover, N Rate and Tillage on Cotton Lint Yields and Maturity at Milan During 1983.

Don Tyler, P. E. Hoskinson and Robert Hayes

Kg N/ha	No-cover, no-till		No-cover, conventional	
	Lint/acre first harvest		Lint/acre first harvest	
	Kg	%	Kg	%
0	401	72	463	82
30	442	72	489	81
60	457	75	563	82
	<u>Vetch, no-till</u>		<u>Vetch, conventional</u>	
0	460	68	446	70
30	489	61	579	75
	<u>Rye, no-till</u>		<u>Rye, conventional</u>	
0	342	70	409	82
30	390	69	482	81
60	480	72	548	83
	<u>Rye, vetch, no-till</u>		<u>Rye, vetch, conventional</u>	
0	311	52	474	68
30	424	53	520	68
60	380	59	522	73

Loring - Grenada silt loam (0-2%)

Planted May 27, 1983.

Harvested September 23 and November 1, 1983.

LINT YIELD AND OTHER CHARACTERISTICS OF 8 COTTON VARIETIES PLANTED
NO-TILL IN 1982 COTTON STUBBLE (SPLIT MIDDLES) AND McNAIR 235 PLANTED
IN A CONVENTIONALLY PREPARED SEEDBED AT MILAN, TN. IN 1983.

Phil E. Hoskinson

ENTRY	Yield Per Acre			Gin	Lint Quality		
	Total Lbs.	First Harvest Lbs.	%	Turnout %	Grade	Staple 32's	Micro- naire
McNair 235 (No-Till)	535	480	90	38.9	41	34	4.8
McNairy 235(Conventional)	529	457	86	38.9	50	34	5.0
Stoneville 506	493	428	87	37.7	40	34	5.0
Deltapine 733	493	424	86	38.4	31	35	5.2
Stoneville 213	480	378	79	39.1	31	34	5.0
Coker 304	473	415	88	38.4	41	34	4.6
Stoneville 825	454	366	81	39.2	40	34	4.8
Deltapine 62	447	368	82	37.0	31	34	4.8
Coker 3131	429	352	82	39.6	41	34	4.7
Average	481	407	85	38.6		34.1	4.88
Min. L.S.R. .05	50.4	57.9					
Max. L.S.R. .05	58.7	67.5					
C.V.%	9.0	12.2					

Memphis Silt Loam (2% to 5% slopes)

Planted May 26; harvested Sept. 30 & Nov. 2.

LINT YIELD AND OTHER CHARACTERISTICS OF 8 COTTON VARIETIES PLANTED
NO-TILL IN RYE AND STONEVILLE 213 PLANTED IN A CONVENTIONALLY
PREPARED SEEDBED AT MILAN, TN. IN 1983.

Phil E. Hoskinson

ENTRY	Yield/Acre Lbs.	Gin Turnout %	Grade	Lint Quality	
				Staple 32's	Micronaire
Deltapine 733	519	37.4	31	35	4.9
McNair 235	517	37.8	41	34	4.6
Deltapine 62	517	38.9	31	35	4.8
Stoneville 506	515	38.7	41	34	4.5
Stoneville 213 (No-Tilled)	508	38.4	41	35	4.6
Stoneville 825	438	38.0	41	34	4.6
Coker 304	425	38.4	41	34	4.5
Coker 3131	407	39.7	41	35	4.6
Stoneville 213 (Conventional)	336	38.6	41	33	4.7
Average	464	38.4		34.4	4.64
L.S.D. .05	N.S.				
C.V.%	20.1				

Memphis Silt Loam (2% to 5% slopes)

Planted May 11; more than 90% of crop obtained at first harvest
on September 30.

Table 68. Soybeans: Yields of early-maturing soybean varieties evaluated in 1983.

Charles R. Graves

Variety	Avg. ^{1/}	Knox- ^{2/} ville	Cross- ^{3/} ville	Spring- ^{4/} field	Milan ^{5/}	Ames Plantation ^{6/}	Martin ^{7/}
Bushels per Acre							
RA 431	29	41	34	18	26	25	23
Mitchell	28	34	41	18	23	23	16
RA 480	28	35	33	16	26	27	25
Helena Brand 401	28	35	41	17	20	24	22
Asgrow A4997	28	36	34	17	23	<u>8/</u>	15
DeKalb CX482	27	35	42	16	19	22	18
Mitchell 450	27	38	40	15	21	21	21
N.K. S45-01	26	34	41	14	24	19	18
Lawrence	26	33	38	19	25	15	16
DeKalb CX380	26	30	39	20	22	19	13
GA Blend 8450	26	34	40	16	22	16	<u>8/</u>
Pioneer variety 3981	26	29	37	20	24	17	<u>17</u>
DeKalb CX453	25	32	41	14	23	17	15
Payette	25	33	36	18	23	15	9
Union	24	29	35	19	22	16	16
GA Blend 8350	24	27	35	17	22	17	<u>8/</u>
Franklin	23	27	34	16	20	19	<u>13</u>
L.S.D. (.05)		4.8	4.7	2.7	N.S.	4.6	N.S.
C.V. %		10.2	8.7	11.2	16.6	16.6	44.7
Avg.		33.0	37.7	17.0	22.7	19.6	17.2

^{1/} Martin data not included in average due to high C.V.

^{2/} Sequatchie loam (2% to 5% slopes).

^{3/} Hartsells loam (2% to 5% slopes).

^{4/} Dickson silt loam (2% to 5% slopes).

^{5/} Collins silt loam (2% to 5% slopes).

^{6/} Loring silt loam (2% to 5% slopes).

^{7/} Grenada silt loam (0% to 2% slopes).

^{8/} Was not included at these locations.

Table 53. Soybeans: Yields of varieties (maturity group V) evaluated at six locations in 1983.

Charles R. Graves							
Variety	Avg.	Greene- ^{1/} ville	Knox- ^{2/} ville	Spring- ^{3/} field	Spring- ^{4/} Hill	Martin- ^{5/}	Milan ^{6/}
Bushels per acre							
Deltapine 105	38	52	52	16	47	26	34
Pioneer variety 5482	38	49	48	14	51	28	30
NAPB NS26-79	38	50	49	18	48	24	37
FFR 561	38	49	49	14	45	30	25
Riverside/Terra 503	37	52	48	16	45	26	29
NAPB NS27-29	37	48	47	18	47	26	30
TN 80-69	36	45	49	18	39	31	37
Hartz 5171	36	49	46	17	43	26	40
TN 77-119	36	44	48	16	44	27	29
Asgrow A5618	36	47	48	15	46	23	25
RA 502	35	52	49	16	37	21	37
Bay	35	47	50	14	40	24	28
Riverside/Terra 593	35	46	47	13	46	23	29
Essex	35	45	45	16	43	24	23
TN 77-111	34	49	45	15	41	21	37
Hartz 5370	34	40	45	17	41	28	35
Forrest	34	46	43	16	35	27	24
FFR 559	33	45	44	16	38	23	28
FFR 560	33	42	44	15	42	23	39
Hartz 5252	33	41	40	16	39	29	30
Deltapine 345	33	42	41	17	39	25	31
Terra-vig 505	33	38	48	17	40	20	34
Bedford	33	43	43	14	41	22	26
Asgrow A5474	32	43	43	16	39	21	31
Coker 355	32	39	46	15	38	22	24
Pioneer variety 9561	32	44	44	16	34	22	34
Asgrow A5939	32	47	41	14	40	17	35
Riverside/Terra 563	31	42	41	18	32	23	26
Nathan	31	39	38	13	34	31	24
D77-5090 (Epps)	31	41	42	13	37	19	27
L.S.D. (.05)	--	7.5	5.9	2.0	N.S.	N.S.	N.S.
C.V. %	--	11.8	9.2	7.4	19.7	21.1	30.2
Avg.	--	45.2	45.4	19.7	41.0	24.1	30.6

1/ Hermitage silt loam (2% to 5% slopes).

2/ Sequatchie loam (2% to 5% slopes).

3/ Dickson silt loam (2% to 5% slopes).

4/ Huntington silt loam (0% to 2% slopes).

5/ Falaya silt loam (0% to 2% slopes).

6/ Collins silt loam (2% to 5% slopes).

7/ Milan data not included in average due to high c.v.

Table 61. Soybeans: Yield of varieties (maturity groups VI & VII) evaluated at four locations in 1983.

Charles R. Graves

Variety	Avg.	Knox- ^{1/} ville	Spring- ^{2/} Hill	Milan ^{3/}	Ames Plantation ^{4/}
Bushels per acre					
Wilstar 790	36	48	30	32	37
NAPB NS-268-79	36	46	33	37	29
N. K. S69-96	35	47	28	34	33
RA 604	35	42	30	39	28
Riverside/Terra 713	34	45	30	31	31
Coker 156	34	44	30	30	30
Asgrow A7372	33	39	31	30	33
Deltapine 417	33	40	28	27	37
Terra-vig 606	32	42	28	29	31
NAPB NS-340-79	32	39	31	33	26
Hartz 7126	32	36	28	29	35
Deltapine 506	32	38	27	33	29
TN 80-83	32	44	30	34	17
Asgrow A6520	32	40	36	29	22
FFR 668	32	38	26	33	28
N. K. S72-60	31	41	28	29	28
NAPB NS-357-79	31	37	32	28	27
Jeff	31	35	28	30	28
Hartz 6383	30	38	28	28	27
Centennial	30	37	32	24	29
Deltapine 497	30	31	26	30	34
RA 606	29	36	27	26	28
Deltapine 246	29	40	30	25	23
Riverside/Terra 613	29	34	31	22	29
Bradley	28	34	28	23	28
L.S.D. (.05)	--	7.1	4.0	7.1	4.5
C.V. %	--	12.7	9.7	17.1	11.1
Avg.	--	39.5	29.4	29.6	28.8

^{1/} Sequatchie loam (2% to 5% slopes).

^{2/} Maury silt loam (2% to 5% slopes).

^{3/} Collins silt loam (0% to 2% slopes).

^{4/} Loring silt loam (2% to 5% slopes).

ADVANCED YIELD TRIAL OF EXPERIMENTAL LINES OF SOYBEANS

1983

F. L. ALLEN

Variety or Experimental Line	Height (in)	Maturity (mo-day)	Lodging ^{1/} 1-5	Yield (bu/A)
TN81-136	38	10-8	1	21.6
TN81-23	42	9-25	1	21.8
TN81-133	35	9-24	1	22.5
TN81-175	45	10-10	1	24.2
TN81-31	36	9-30	1	24.6
TN81-173	47	10-7	1	25.2
TN81-46	35	9-26	1	26.6
TN80-22	34	10-5	1	26.7
TN82-195	40	10-6	1	27.8
TN82-145	34	9-28	1	28.2
TN81-45	44	9-27	3.5	29.3
TN81-166	38	9-21	1	29.5
TN81-137	45	9-30	1	30.5
TN81-28	45	10-2	1	30.8
TN81-163	42	10-5	1	30.9
TN82-192	48	10-7	1	31.1
TN81-42	36	9-24	1	31.1
TN82-105	41	10-5	1	31.4
ESSEX	32	9-26	1	33.6
TN82-208	41	10-6	1	33.8
TN82-216	41	9-28	1	33.9
TN81-24	37	9-28	1	35.2
TN82-207	37	10-5	1	35.3
TN82-136	39	10-6	1	35.5
ASGRW5474	41	9-28	1	35.6
TN82-126	39	10-7	1	35.7
TN82-19	37	10-3	1	35.7
TN81-32	33	9-28	1	36.0
TN82-215	38	10-5	1	36.7
TN82-141	41	10-6	1	37.9
TN81-22	48	10-9	1	38.2
TN81-84	45	10-4	1	38.8
TN77-111	47	10-4	1.5	38.8
TN82-128	39	10-4	2	39.7
TN82-181	36	10-2	1	40.3
TN82-31	37	9-26	1	41.5
TN80-69	39	10-7	1	41.7
TN82-14	39	10-3	1	42.8
TN77-119	43	10-7	1	43.4
TN82-162	43	10-3	1	43.6

^{1/} Scale = 1 to 5 where 1 = 0 to % lodged
plants and 5 = 90+ % lodged plants.

Mean = 33.2
LSD(.05) = 11.44
CV = 21.08%

Soil Type: Collins Silt Loam

Planting Date: 27 May 1983

INTERMEDIATE YIELD TRIAL OF EXPERIMENTAL LINES OF SOYBEANS

1983

F. L. Allen

Variety or Experimental Line	Height (in.)	Maturity (Mo - day)	Lodging ^{1/} 1-5	Yield (bu/A)
TN82-78	40	9-26	1	21.1
TN82-91	49	9-27	1	29.7
TN82-149	41	10-7	1	29.8
TN82-210	40	10-5	1	30.0
TN82-147	40	10-9	1	30.6
TN82-226	44	10-4	1	32.3
DOUGLAS	30	9-25	1	32.3
TN82-89	37	9-28	1	32.8
TN82-45	37	9-30	1	32.9
TN82-50	40	9-28	1	33.3
TN82-49	38	9-29	1	33.5
TN82-98	33	9-28	1	33.8
TN82-66	43	9-25	1	34.0
TN82-93	40	9-24	1	34.4
TN82-67	43	9-27	1	34.7
TN82-127	34	10-5	1	35.0
TN82-73	48	9-27	1	35.4
TN82-221	43	10-6	1	35.5
TN82-129	34	9-28	1	35.6
TN82-86	43	9-28	1	36.0
TN82-94	31	9-29	1	36.1
TN82-133	34	10-1	1	36.6
TN81-144	49	9-25	1	37.0
TN81-142	48	9-25	1	37.3
TN82-38	45	9-28	1	37.5
TN82-97	36	9-29	1	37.8
TN82-23	33	9-26	1	38.3
TN82-96	37	9-28	1	38.7
TN82-155	46	10-6	1	40.8
TN82-58	43	9-26	1	40.9
TN82-68	34	9-28	1	41.2
TN82-99	36	9-27	1	42.2
TN81-138	43	9-28	1	43.1
TN82-206	43	10-7	1	43.4
TN81-2	39	9-25	1	44.0
TN82-95	30	9-27	1	44.6
TN82-16	33	9-25	1	44.8
TN82-213	40	10-10	1	45.0
TN82-64	35	9-30	1	45.5
ESSEX	35	10-3	1	45.9

^{1/} Scale = 1 to 5 where 1 = 0 to 5% lodged
plants and 5 = 90+ % lodged plants.

Mean = 36.9
LSD(.05) = 10.7
CV = 17.8%

Soil Type: Collins Silt Loam

Planting Date: 27 May 1983

CONVENTIONAL PLANTED SOYBEAN

(40" Rows)

Milan - 1983

<u>Field No.</u>	<u>Acres</u>	<u>Variety</u>	<u>Soil Type</u>	<u>Planting Date</u>	<u>Yields</u>
A-5	32.0	Essex	Loring-Falaya-Grenada	6/8	8.8
A-11	34.0	Essex	Routon-Grenada	6/15	10.0
A-10	5.0	Essex	Calloway	6/16	10.3
A-7	8.0	Essex	Waverly-Grenada	6/9	15.8
A-6	6.0	Essex	Falaya-Grenada	6/8	13.2
A-8	48.0	Asgrow	Calloway-Routon-Grenada		
			Loring	6/7	10.0
A15 & A17	8.0	Essex	Calloway	6/8	10.0
S1 R.S.	7.28	Essex	Falaya Silt Loam	6/1	35.0
S5	3.0	Pioneer 5482	Memphis Silt Loam	6/2	17.5
Total	151.3			Average	11.5

No. of Conventional Acres 151.3 = 11.5 bu./A.

H-414-21 Drilled
Milan, 1983

Pioneer 5482 and Asgrow A5474 soybean varieties
drilled at several seeding rates at Milan in 1983.

Seeding rate lbs/acre	Variety	
	Asgrow A5474	Pioneer 5482
	Bushels per acre	
30	22.1	21.1
45	24.8	20.2
60	22.6	22.4
80	24.5	22.4
90	24.6	21.9
120	24.4	23.8
20" rows $\frac{1}{2}$	21.9	20.0
L.S.D. (.05)	N.S.	N.S.
C.V. %	12.1	11.8
Avg.	23.6	21.7

20" row was seeded at 60 lbs/acre.

DYER COUNTY SOYBEAN VARIETY DEMONSTRATION
-1983-

Charles R. Graves

Variety	Sharkey Clay	Dundee Silt Loam	Alligator Clay	Dundee Silt Loam*	Average
Ring Around 604	27.5	47.2	24.6	30.8	32.5
Jeff	29.5	41.8	28.9	27.5	31.9
Asgrow A5618	28.2	44.8	18.4	30.4	30.4
Bay	22.9	33.9	22.9	28.9	27.2
Ring Around 502	22.1	42.4	16.9	26.4	27.0
FFR 560	17.4	47.8	16.4	25.9	26.9
Asgrow A5474	19.7	37.5	22.8	26.4	26.6
Pioneer 5482	21.0	39.3	21.1	24.6	26.5
Bedford	16.7	39.3	18.0	22.6	24.2
Forrest	14.2	30.9	21.4	22.4	22.2
Nathan	16.0	32.1	13.7	23.8	21.4
Essex	14.2	29.0	15.9	22.2	20.3
Tracy **	36.9	42.4	24.4	33.7	34.3
Asgrow A6520 **	23.9	47.2	24.1	28.3	30.9

* Henson Farm - variety-Irrigation Demonstration

** These two varieties served as border rows for plots. There were four replications for each variety on each soil type.

Soil type & Location	Planting Date	Harvesting Date	Row Spacing
Sharkey Clay Rice Farm - Broadmoor	June 10	Nov. 29	36"
Dundee Silt Loam Reasons' Bros. Farm - Richwood	June 10	Nov. 1	30"
Alligator Clay Rice Farm - Broadmoor	June 22	Nov. 29	36"
Dundee Silt Loam Henson Farm - Bogota	June 29	Dec. 2	30"

SOYBEAN FUNGICIDE - MOLYBDENUM COMBINATION TREATMENTS

Milan Experiment Station, Milan, TN - 1983

Albert Y. Chambers

Treatment	Stand, 60 ft.	Skip index	Vigor rating	Yield, bu./A.
Untreated	478 a ¹	1.2 a ¹	7.1 b ¹	9.0 c ¹
Stand-Up Plus, 4 fl. oz./bu.	506 a	0.0 a	9.0 a	19.1 a
Triple-Noctin L, 4 fl. oz./bu.	477 a	1.4 a	9.2 a	19.5 a
Vitavax-M, 12 fl. oz./cwt.	521 a	0.8 a	8.6 a	15.8 ab
Vitavax 200-FF, 4 fl. oz./cwt.	531 a	0.0 a	7.5 b	10.6 bc
Captan 400-D, 2 fl. oz./cwt.				
+ Apron FF, 0.75 fl. oz./cwt.	497 a	0.2 a	7.5 b	10.7 bc
Vitavax 200-FF, 3.3 fl. oz./cwt.				
+ Apron FF, 0.75 fl. oz./cwt.	488 a	0.2 a	7.8 b	12.3 bc
Epic-Apron FF, 3 fl. oz./cwt.	506 a	1.0 a	7.3 b	8.8 c
Dithane FZ 4F, 2 fl. oz./cwt.	525 a	0.4 a	7.4 b	9.5 c
Dithane FZ 4F, 4 fl. oz./cwt.	539 a	0.2 a	7.8 b	10.6 bc
Mo, 0.2 oz./bu. (from sodium molybdate)	486 a	1.0 a	9.0 a	17.8 a
LSD (0.01)	ns	ns	0.9	6.4
(0.05)	ns	ns	0.7	4.8
(0.10)	ns	ns	0.6	4.0

Stand-Up Plus, Triple-Noctin L, and Vitavax-M were applied as hopper-box pour-on treatments; the other treatments were applied as conventional seed treatments on May 18-20.

Forrest variety; planted May 30, 10-12 seed/ft.; stand counts completed July 18 (2 center rows of each plot counted); skip index figures are averages of sums of indexes for plots of each treatment, skips were measured and indexed on August 3 in center 2 rows of plots as follows: 12" to 18" - 1, 18" to 24" - 2, etc. with a value of 1 added for each 6" of additional skip length; plots rated for vigor on October 14 (overall appearance rated from 1 to 10 with 1 being dead and 10 being most vigorous); harvested October 14, yields converted to 13% moisture; plots 4 rows (40") x 30 ft.; 5 replications; Loring and Collins silt loam soils (soybeans, 1980-82) tested as follows from sample taken December 1, 1982: pH - 5.0, P - M (24), and K - M (120); fertilization consisted of 0-60-60 applied May 30; Treflan (1 1/2 pt./A.) Do-All incorporated May 30 for weed control.

¹Mean figures followed by the same small letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).

POTASH AND SOYBEAN FOLIAR FUNGICIDES

Disease Severity and Yield, Test I

Milan Experiment Station, Milan, TN - 1983

Albert Y. Chambers

Treatment	Disease Ratings			Yield, Bu./A.
	Leaf	Pod	Stem	
No fungicide, no K	7.8 a ¹	3.9 a ¹	7.3 a ¹	7.5 a ¹
No fungicide, K	5.3 b	3.3 b	5.8 b	8.7 a
Bravo 500, no K	4.0 c	2.6 c	4.5 c	8.2 a
Bravo 500, K	2.4 d	1.9 d	3.4 d	9.7 a
LSD 1%	0.7	0.5	1.1	ns
5%	0.5	0.4	0.8	ns
10%	0.4	0.3	0.6	ns

Forrest variety planted June 3; plots 4 rows (40") x 40 ft.; 4 replications; randomized complete block design; sprayed with Bravo 500 at 2 pt./A. on August 12 and 26 (R3 and R5 growth stages), 3 nozzles per row and 25 gal./A. of water; leaf disease ratings (Septoria brown spot) made October 4 using scale of 0 = no disease symptoms observed to 9 = very severe injury; harvested and pod and stem disease ratings (anthracnose) made using rating scale above on October 14, yields converted to 13% moisture; Grenada silt loam soil (soybean, 1980-82); fertilization consisted of 0-80-0 on no K plots and 0-80-80 on K plots applied broadcast March 16; plots ranged in pH from 5.3 to 5.8 and were low in P and K in samples taken November 30, 1982; Treflan applied for weed control.

¹Mean figures followed by the same small letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).

MOLYBDENUM AND SOYBEAN FOLIAR FUNGICIDES

Disease Severity and Yield

Milan Experiment Station, Milan, TN - 1983

Albert Y. Chambers

Treatment	Disease Ratings			Yield, Bu./A.
	Leaf	Pod	Stem	
No fungicide, no Mo	6.0 a ¹	7.2 a ¹	5.9 a ¹	8.0 b ¹
No fungicide, Mo	4.2 b	6.0 b	5.7 a	10.9 a
Mertect, no Mo	3.2 c	4.6 c	4.3 b	8.4 b
Mertect, Mo	2.3 d	3.5 d	3.5 c	11.4 a
LSD 1%	0.8	0.6	0.7	2.4
5%	0.5	0.4	0.5	1.8
10%	0.4	0.3	0.4	1.4

Forrest variety planted May 30; plots 4 rows (40") x 35 ft.; 6 replications; randomized complete block design; sprayed with Mertect 340-F at 8 fl. oz./A. on August 12 and 26 (R3 and R5 growth stages), 3 nozzles/row and 25 gal./A. of water; leaf disease ratings (Septoria brown spot) made October 3 using scale of 0 = no disease symptoms observed to 9 = very severe injury; harvested and pod and stem disease ratings (anthracnose) made using rating scale above on October 14, yields converted to 13% moisture; Grenada silt loam soil (soybeans, 1980-82) tested as follows from sample taken December 1, 1982: pH - 4.8, P - M (24), and K - M (130); fertilization consisted of 0-60-60 applied and disked in on May 30, 0.2 oz./bu. molybdenum applied to seed planted in Mo-treated plots on May 18 (Vitavax-M at 12 fl. oz./cwt.; plots receiving no Mo planted with seed treated with Vitavax-200 at 4 fl. oz./cwt.); Treflan (1 1/2 pt./A.) applied and Do-All incorporated for weed control on May 30.

¹Mean figures followed by the same small letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).

POTASH AND SOYBEAN FOLIAR FUNGICIDES

Disease Severity and Yield, Test II

Milan Experiment Station, Milan, TN - 1983

Albert Y. Chambers

Treatment	Disease Ratings			Yield, Bu./A.
	Leaf	Pod	Stem	
No fungicide, no K	7.8 a ¹	6.8 a ¹	6.9 a ¹	7.2 b ¹
No fungicide, K	4.8 b	5.4 b	5.6 b	12.0 a
Topsin-M, no K	3.8 c	3.8 c	3.8 c	9.4 b
Topsin-M, K	2.3 d	2.4 d	2.4 d	14.1 a
LSD 1%	0.5	0.7	1.4	3.2
5%	0.3	0.5	1.0	2.2
10%	0.2	0.4	0.8	1.8

Forrest variety planted June 3; plots 4 rows (40") x 30 ft.; 4 replications; randomized complete block design; sprayed with Topsin-M 70WP at 0.5 lb./A. on August 12 and 26 (R3 and R5 growth stages), 3 nozzles/row and 25 gal./A. of water; leaf disease ratings (Septoria brown spot) made October 3 using scale of 0 = no disease symptoms observed to 9 = very severe injury; harvested and pod and stem disease ratings (anthracnose) made using rating scale above on October 27, yields converted to 13% moisture; Collins silt loam soil (soybeans, 1980-82); fertilization consisted of 0-80-0 on no K plots and 0-80-80 on K plots applied March 16; plots were sampled December 1, 1982, and ranged in pH from 5.5 to 5.9 while P ranged from low to high and K was low in all plots; Treflan applied for weed control.

¹Mean figures followed by the same small letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).

VARIETAL REACTION TO SOYBEAN FOLIAR FUNGICIDES

Disease Severity and Yield

Milan Experiment Station, Milan, TN - 1983

Albert Y. Chambers

Variety and fungicide	Date of application	Disease Ratings			Yield, bu./A.
		Leaf	Pod	Stem	
Mitchell	---	4.7 de ¹	1.2 i ¹	2.0 f ¹	32.3 d ¹
Mitchell + Benlate	7/29, 8/12	3.3 f	0.4 j	0.4 g	35.1 cd
Essex	---	6.1 abc	7.2 ab	3.4 c	41.2 abc
Essex + Benlate	8/5, 8/19	3.0 fg	4.3 ef	2.2 ef	40.7 abc
Pioneer 5482	---	6.2 ab	5.7 d	3.1 cd	40.6 abc
Pioneer 5482 + Benlate	8/5, 8/19	2.9 fg	3.6 f	2.1 f	43.1 a
York	---	5.6 bcd	6.1 cd	3.2 cd	37.4 a-d
York + Benlate	8/5, 8/19	2.5 fg	3.6 f	2.0 f	37.5 a-d
Bay	---	6.9 a	6.8 bc	3.6 bc	43.5 a
Bay + Benlate	8/12, 8/26	2.9 fg	3.8 f	2.1 f	40.0 abc
Forrest	---	6.2 ab	7.2 ab	4.0 ab	40.9 abc
Forrest + Benlate	8/12, 8/26	2.3 fg	4.1 ef	2.4 ef	39.4 abc
Nathan	---	5.6 bcd	7.8 a	4.3 a	31.0 d
Nathan + Benlate	8/12, 8/26	2.4 fg	4.8 e	2.5 ef	32.1 d
Bedford	---	6.2 ab	6.0 cd	4.0 ab	36.2 bcd
Bedford + Benlate	8/12, 8/26	1.9 g	3.6 f	2.3 ef	35.6 cd
Asgrow A5474	---	7.1 a	6.5 bcd	3.4 c	40.1 abc
Asgrow A5474 + Benlate	8/12, 8/26	2.9 fg	3.9 f	2.1 f	41.5 abc
Asgrow A5618	---	5.1 cde	6.5 bcd	3.1 cd	40.6 abc
Asgrow A5618 + Benlate	8/12, 8/26	2.3 fg	3.9 f	2.0 f	40.6 abc
RA 604	---	5.8 bc	3.7 f	4.2 a	40.0 abc
RA 604 + Benlate	8/19, 9/2	2.6 fg	2.1 gh	2.3 ef	42.7 ab
Centennial	---	4.5 e	2.7 g	4.5 a	35.9 cd
Centennial + Benlate	8/19, 9/2	2.8 fg	1.5 hi	2.7 de	36.0 bcd
LSD 1%		1.2	1.0	0.7	7.3
5%		0.9	0.8	0.5	5.5
10%		0.8	0.6	0.4	4.6

Planted May 30; one-half of each plot of each variety sprayed at early podset and late podset (R3 and R5 growth stages) with Benlate 50WP at 0.5 lb./A. with a high clearance sprayer with 3 nozzles per row; main-plots 4 rows (40") x 30 ft., sub-plots 2 rows (40") x 30 ft.; 5 replications; split-plot design; leaf disease ratings (*Septoria brown spot*) made using scale of 0 = no disease symptoms observed to 9 = very severe injury as leaves began to change color in the untreated portions of plots; harvested and pod and stem disease ratings (*anthracnose*) made October 29 (Mitchell, September 23) using rating scale above, yields converted to 13% moisture; Falaya silt loam soil (soybeans, 1980-82) tested as follows from sample taken December 1, 1982: pH - 5.7, P - M (28), and K - L (80); fertilization consisted of 0-0-80 applied March 17; Treflan (0.75 lb. ai/A.) applied for weed control on May 28.

¹Mean figures followed by the same small letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).

ROW SPACING AND SOYBEAN FOLIAR FUNGICIDES

Disease Severity and Yield

Milan Agricultural Experiment Station, Milan, Tennessee - 1983

Albert Y. Chambers

Treatment	Disease Ratings			Yield, Bu./A.
	Leaf	Pod	Stem	
40" rows :				
No foliar fungicide	7.8 a ¹	7.5 c ¹	5.2 b ¹	22.0 a ¹
Mertect 340-F, 8 fl. oz./A.	3.9 b	5.0 f	3.3 e	22.9 a
20" rows :				
No foliar fungicide	7.8 a	7.8 b	5.7 a	21.4 a
Mertect 340-F, 8 fl. oz./A.	4.0 b	5.3 e	3.7 d	21.7 a
10" rows :				
No foliar fungicide	8.1 a	8.3 a	6.0 a	22.5 a
Mertect 340-F, 8 fl. oz./A.	4.3 b	5.8 d	4.1 c	22.3 a
LSD 1%	0.5	0.34	0.47	ns
5%	0.4	0.25	0.35	ns
10%	0.3	0.21	0.29	ns

Essex variety planted May 31; 10" rows seeded with Tye drill, 20" and 40" rows planted with 4-row planter with which for 20" rows after planting 40" rows additional rows were planted in the middles; sprayed Mertect 340-F in 28 gal. water/A. with high clearance sprayer (2 nozzles/row, no drops) on August 5 (R3, early podset stage) and 19 (R5, late podset stage); leaf disease ratings (Septoria brown spot) made September 30 using rating scale of 0 to 9 with 0 being no apparent symptoms and 9 being most severe injury; harvested and pod and stem ratings (anthracnose) made October 14, scale for ratings as above, yields converted to 13% moisture; split-plot design; main plots 26 2/3 x 40 ft., sub-plots 13 1/3 x 40 ft.; 6 replications; Collins silt loam soil (soybeans, 1980; cotton, 1981; soybeans, 1982) tested as follows from sample taken December 1, 1982: pH - 6.1, P - H (36), and K - M (120); fertilization consisted of 0-0-60 applied March 30; Prowl (0.75 lb. ai/A., Do-All incorporated) applied for weed control.

¹Mean figures followed by the same small letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).

EFFECT OF ROW SPACING, VARIETY AND NITROGEN
ON YIELD AND QUALITY OF SOYBEANS1983
W. L. Parks
(Acre Yields of Soybeans)

Essex

Tmt. No.	Row Spacing	Nitrogen	Replication						Avg.
			1	2	3	4	5	6	
			Bu.	Bu.	Bu.	Bu.	Bu.	Bu.	Bu.
1	20	0	47.9	33.8	11.5	47.9	40.5	45.3	37.8
2	20	100	41.6	32.7	19.7	40.9	46.7	56.1	39.6
3	15	0	45.2	41.2	20.2	44.0	43.6	28.1	37.1
4	15	100	46.7	36.1	41.2	48.7	43.2	41.2	42.9
5	10	0	55.2	45.4	7.6	43.7	58.6	49.2	43.3
6	10	100	49.7	40.3	24.6	45.8	61.1	41.2	43.8

Row Spacing Means

20" = 38.7

15" = 40.0

10" = 43.5

L.S.D. (5%) = N.S.
(1%) = N.S.Nitrogen Means

0 lb. = 39.4

100 lb. = 42.1

L.S.D. (5%) = N.S.
(1%) = N.S.

Analysis of Variance

<u>Source of Variation</u>	<u>D.F.</u>	<u>Sum of Squares</u>	<u>Mean Square</u>	<u>F Value</u>
Row Spacing (RS)	2	150.25	75.125	0.81
Replications	5	3283.12	656.62	7.04 **
Error (a)	10	932.22	93.22	
Nitrogen (N)	1	65.61	65.61	1.68
RS x N	2	45.78	22.89	0.59
Error (b)	15	586.24	39.08	
Total	35	5063.22		

** Significant at the 1% level of probability.

Planted: May 31

Harvested: October 10

Soil Type: Lexington Silt Loam

EFFECT OF ROW SPACING, VARIETY AND NITROGEN
ON YIELD AND QUALITY OF SOYBEANS

1983

W. L. Parks

(Acre Yields of Soybeans)

Asgrow

Tmt. No.	Row Spacing	Nitrogen	Replication						Avg.
			1	2	3	4	5	6	
			Bu.	Bu.	Bu.	Bu.	Bu.	Bu.	Bu.
1	20	0	33.1	19.6	45.2	36.9	30.9	32.8	33.1
2	20	100	26.7	21.5	36.1	30.5	30.5	31.6	29.5
3	15	0	32.9	18.9	41.4	34.9	34.1	38.6	33.5
4	15	100	29.3	21.7	33.7	27.7	28.9	34.9	29.4
5	10	0	36.6	33.6	38.7	36.1	37.4	37.0	36.6
6	10	100	35.7	38.7	30.1	37.4	39.2	40.0	36.9

Row Spacing Means

20" = 31.3

15" = 31.4

10" = 36.7

L.S.D. (5%) = N.S.

(1%) = N.S.

Nitrogen Means

0 lb. = 34.4

100 lb. = 31.9

L.S.D. (5%) = 2.16

(1%) = N.S.

Analysis of Variance

<u>Source of Variation</u>	<u>D.F.</u>	<u>Sum of Squares</u>	<u>Mean Square</u>	<u>F Value</u>
Row Spacing (RS)	2	229.80	114.90	3.54
Replications	5	501.73	100.35	3.09
Error (a)	10	324.94	32.49	
Nitrogen (N)	1	55.01	55.01	5.93*
RS x N	2	34.54	17.27	1.86
Error (b)	15	139.10	9.27	
Total	35	1285.12		

* Significant at the 5% level of probability.

Planted: May 31

Harvest Dates: October 10

Soil Type: Lexington Silt Loam

EFFECT OF ROW SPACING, VARIETY AND NITROGEN
ON YIELD AND QUALITY OF SOYBEANS

1983

W. L. Parks

(Acre Yields of Soybeans)

Forrest

Tmt. No.	Row Spacing	Nitrogen	Replication						Avg.
			1	2	3	4	5	6	
			Bu.	Bu.	Bu.	Bu.	Bu.	Bu.	Bu.
1	20	0	40.0	23.2	22.1	40.8	29.5	12.3	28.0
2	20	100	43.0	31.8	16.1	31.8	30.3	14.6	27.9
3	15	0	47.1	29.9	19.9	43.5	31.5	14.8	31.1
4	15	100	30.7	29.5	12.4	39.1	29.9	12.8	25.7
5	10	0	46.6	33.8	22.7	47.4	44.4	18.8	35.6
6	10	100	37.6	35.9	18.4	37.6	43.2	10.3	30.5

Row Spacing Means

20" = 28.0

15" = 28.4

10" = 33.1

L.S.D. (5%) = 3.92

(1%) = N.S.

Nitrogen Means

0 lb. = 31.6

100 lb. = 28.0

L.S.D. (5%) = 2.90

(1%) = N.S.

Analysis of Variance

<u>Source of Variation</u>	<u>D.F.</u>	<u>Sum of Squares</u>	<u>Mean Square</u>	<u>F Value</u>
Row Spacing (RS)	2	190.78	95.39	5.13*
Replications	5	3776.55	755.31	40.61**
Error (a)	10	185.99	18.6	
Nitrogen (N)	1	111.30	111.30	6.68*
RS x N	2	54.19	27.10	1.63
Error (b)	15	249.91	16.66	
Total	35	4568.72		

* Significant at the 5% level of probability.

** Significant at the 1% level of probability.

Planted: May 31

Harvest: October 10

Soil Type: Lexington Silt Loam

EFFECT OF ROW SPACING, VARIETY AND NITROGEN
ON YIELD AND QUALITY OF SOYBEANS

1983

W. L. Parks

(Acre Yields of Soybeans)

S4-Pioneer 5482

Tmt. No.	Row Spacing	Nitrogen	Replication						Avg.
			1	2	3	4	5	6	
			Bu.	Bu.	Bu.	Bu.	Bu.	Bu.	Bu.
1	20	0	14.4	27.9	43.4	16.6	17.4	32.5	25.4
2	20	100	15.9	23.8	34.7	20.4	29.8	31.0	25.9
3	15	0	19.3	23.4	28.2	32.2	24.6	34.2	27.0
4	15	100	18.9	27.4	32.6	26.2	19.3	33.0	26.2
5	10	0	16.8	36.2	31.9	25.5	22.9	31.1	27.4
6	10	100	26.3	30.6	32.8	26.2	26.3	29.3	28.6

Row Spacing Means

20" = 25.7

15" = 26.6

10" = 28.0

L.S.D. (5%) = N.S.

(1%) = N.S.

Nitrogen Means

0 lb. = 26.6

100 lb. = 26.9

L.S.D. (5%) = N.S.

(1%) = N.S.

Analysis of Variance

Source of Variation	D.F.	Sum of Squares	Mean Square	F Value
Row Spacing (RS)	2	33.26	16.63	0.54
Replications	5	975.0	195.0	6.29**
Error (a)	10	310.21	31.02	
Nitrogen (N)	1	1.0	1	0.06
RS x N	2	5.85	2.93	0.18
Error (b)	15	245.13	16.34	
Total	35	1570.45		

** Significant at the 1% level of probability.

Planted: May 31

Harvest: October 10

Soil Type: Lexington Silt Loam

EFFECT OF ROW SPACING, VARIETY AND NITROGEN
ON YIELD AND QUALITY OF SOYBEANS

1983

W. L. Parks
(Acre Yields of Soybeans)

Mitchell

Tmt. No.	Row Spacing	Nitrogen	Replication						Avg.
			1	2	3	4	5	6	
			Bu.	Bu.	Bu.	Bu.	Bu.	Bu.	Bu.
1	20	0	15.7	15.4	16.1	13.5	15.0	16.8	15.4
2	20	100	16.8	12.4	20.9	12.8	10.6	16.1	14.9
3	15	0	16.4	30.0	12.9	16.0	13.7	12.1	16.9
4	15	100	15.2	21.5	16.8	11.7	14.1	9.0	14.7
5	10	0	20.9	14.2	18.4	21.7	18.8	17.1	18.5
6	10	100	21.7	13.0	22.6	16.7	18.8	12.6	17.6

Row Spacing Means

20" = 15.1

15" = 15.8

10" = 18.0

L.S.D. (5%) = N.S.

(1%) = N.S.

Nitrogen Means

0 lb. = 16.9

100 lb. = 15.7

L.S.D. (5%) = N.S.

(1%) = N.S.

Analysis of Variance

<u>Source of Variation</u>	<u>D.F.</u>	<u>Sum of Squares</u>	<u>Mean Square</u>	<u>F Value</u>
Row Spacing (RS)	2	54.75	27.38	0.83
Replications	5	87.81	17.56	0.53
Error (a)	10	329.35	32.94	
Nitrogen (N)	1	12.72	12.72	1.89
RS x N	2	4.34	2.17	0.32
Error (b)	15	100.79	6.72	
Total	35	589.76		

Planted: May 31

Harvest: October 10

Soil Type: Lexington Silt Loam

EFFECT OF ROW SPACING, VARIETY AND NITROGEN
ON YIELD AND QUALITY OF SOYBEANS

1983

W. L. Parks

(Acre Yields of Soybeans)

Centennial

Tmt. No.	Row Spacing	Nitrogen	Replication						Avg.
			1	2	3	4	5	6	
			Bu.	Bu.	Bu.	Bu.	Bu.	Bu.	Bu.
1	20	0	30.6	30.6	30.3	32.5	27.7	34.2	31.0
2	20	100	34.8	28.3	29.6	30.6	26.0	27.0	29.4
3	15	0	38.4	41.0	29.6	46.1	38.8	31.5	37.6
4	15	100	35.1	27.5	28.9	32.6	38.8	25.6	31.4
5	10	0	28.2	25.9	31.9	27.6	31.0	18.5	27.2
6	10	100	27.9	25.9	28.8	27.0	24.8	22.2	26.1

Row Spacing Means

20" = 30.2

15" = 34.5

10" = 26.6

L.S.D. (5%) = 4.25

(1%) = 6.05

Nitrogen Means

0 lb. = 31.9

100 lb. = 29.0

L.S.D. (5%) = 2.27

(1%) = N.S.

Analysis of Variance

Source of Variation	D.F.	Sum of Squares	Mean Square	F Value
Row Spacing (RS)	2	370.91	185.46	8.48**
Replications	5	157.54	31.51	1.44
Error (a)	10	218.60	21.86	
Nitrogen (N)	1	78.03	78.03	7.67*
RS x N	2	46.64	23.32	2.29
Error (b)	15	152.65	10.18	
Total	35	1024.37		

**Significant at the 1% level of probability.

*Significant at the 5% level of probability.

Planted: May 10

Harvest: November 17

Soil Type: Lexington Silt Loam

HIGH YIELD SOYBEANS - FERTILITY - VARIETY

Milan Exp. Station

1983

W. L. Parks

8-10" Rows x 60'

Variety	Replications				Average
	1	2	3	4	
Forrest	27.7	32.0	31.0	31.2	30.5
Asgrow	38.3	36.3	37.4	40.3	38.1
Nathan	39.9	43.2	42.7	35.9	40.4
Essex	39.2	44.5	43.0	40.8	41.9

ANALYSIS OF VARIANCE

Source of Variation	d.f.	Sum of Squares	Mean Square	F value
Variety	3	308.79	102.93	18.45**
Replications	3	19.3	6.43	1.15
Error	9	50.23	5.58	
TOTAL	15	378.32		

Planted: June 1

Soil Type: Falaya Silt Loam

Effect of Phosphate & Potash on Soybeans
1983

Don D. Howard

P_2O_5 lbs/A	K_2O	Yield bu/A
0	0	14.0
0	30	13.3
0	60	10.1
30	0	11.4
30	30	10.8
30	60	11.6
60	0	13.4
60	30	12.5
60	60	13.3
90	0	12.7
90	30	12.6
90	60	14.1

Soil type: Loring silt loam

pH 6.5 P - L K - L

Variety: Asgrow 5474

20" rows

Planted June 24 after wheat

Fertilizer applied in fall to wheat, no additional applied.

Fert. Rates & Placement on Soybeans
Milan 1983

Don D. Howard

Starter			Band			Broadcast		Yield Bu/A	Stand Count*	
N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	P ₂ O ₅	K ₂ O		6-21**	7-25*
0	12	6	0	0	0	0	0	12	11.8	10.8
0	12	6	0	40	20	0	0	18	14.8	12.3
0	12	6	0	40	20	40	20	15	12.0	6.3
0	12	6	0	0	0	40	20	15	18.5	17.5
0	0	0	0	40	20	40	20	15	24.5	21.5
0	0	0	0	0	0	40	20	16	21.8	26.3
0	0	0	0	40	20	0	0	15	24.8	20.3
1.5	8	8	0	0	0	0	0	15	10.8	7.8
1.5	8	8	2.4	14.5	14.5	0	0	16	11.3	10.5
1.5	8	8	2.4	14.5	14.5	40	20	14	11.3	13.0
0	0	0	2.4	14.5	14.5	40	20	17	30.3	27.0
0	0	0	0	0	0	0	0	15	28.3	21.3

N.S.

*Plants/3 ft. row

**3rd row

***2nd row

Planted June 7

Asgrow 5474

Row spacing 40"

Electrostatic spray application for postemergence grass control in soybeans, Milan Experiment Station, 1983

F. D. Tompkins, W. E. Hart, R. M. Hayes, L. R. Wilhelm, J. B. Wilkerson

Fusilade lb ai/ac 7-27	Total Volume per ac	Weed Control (%)			Yield (bu/ac) 11-18
		8-12			
		Fall Panicum	Large Crabgrass	Goose- grass	
0.06	20 gpa	10	10	10	14.6
0.125	20 gpa	30	30	30	18.3
0.25	20 gpa	30	30	30	16.6
0.06	0.8 pt/ac	30	30	30	16.1
0.125	0.8 pt/ac	30	30	30	16.7
0.25	0.8 pt/ac	60	30	40	18.2
None	----	0	0	0	15.9

Relative Response of Sicklepod to Corn, Cotton and Soybean Herbicides, Milan Exp. Station, Milan, 1983

Treatment			Rate lb/A	Percent Sicklepod Control ^{1/}				
				6/22/83	7/7/83	7/28/83	8/10/83	9/6/83
1	Aatrex 4L	PE	2	96 ab	97 a	90 abc	69 bcd	62 ab
2	Aatrex 4L	PE	3	99 a	99 a	96 ab	91 ab	79 a
3	Aatrex 4L	PE	4	97 a	98 a	97 a	94 a	76 a
4	Aatrex 4L + Princep 4L	PETM	1 + 1	91 a-d	92 ab	83 a-d	55 def	44 bcd
5	Aatrex 4L + Princep 4L	PETM	2 + 1	94 abc	97 a	93 abc	87 abc	74 a
6	Princep 4L	PE	1	41 g	61 de	46 e	22 ghi	17 e-h
7	Aatrex 4L + Bladex 4L	PETM	1 + 1	92 abc	90 ab	71 cd	37 fgh	41 b-e
8	Aatrex 4L + Bladex 4L	PETM	1 + 2	81 a-f	93 ab	84 a-d	68 bcd	57 abc
9	Bladex 4L	PE	2	70 d-g	72 cd	41 ef	5 i	12 fgh
10	Cotoran 80W	PE	1.5	93 abc	93 ab	85 a-d	76 a-d	54 abc
11	Karmex 80W	PE	1.0	74 b-f	76 bcd	44 ef	24 ghi	27 d-h
12	Zorial 80W	PE	1.5	72 c-g	62 de	37 ef	21 ghi	32 c-g
13	Metribuzin 75DF	PE	.5	87 a-e	87 abc	66 d	37 fgh	39 b-e
14	Zorial 80W + Cotoran 80W	PETM	1.5 + 1	92 abc	88 abc	79 a-d	64 cde	60 ab
15	Zorial 80W + Karmex 80W	PETM	1.5 + 1	83 a-f	90 ab	83 a-d	63 cde	62 ab
16	Zorial 80W + Metribuzin 75DF	PETM	1 + .38	90 a-e	89 abc	72 cd	44 efg	46 bcd
17	AC 252, 214	PE	.12	52 g	51 e	24 f	5 i	7 gh
18	AC 252, 214	PE	.25	73 c-f	72 cd	39 ef	17 hi	22 d-h
19	AC 252, 214	PE	.38	64 fg	76 bcd	44 ef	24 ghi	37 b-f
20	DPX F 6025	PE	.06	69 efg	63 de	27 ef	5 i	5 h
21	DPX F 6025	PE	.12	88 a-e	82 abc	39 ef	5 i	16 e-h
22	Lasso 4E + Metribuzin 4L	PETM	2 + .38	96 ab	97 a	74 bcd	87 abc	72 a
	Toxaphene + Agridex	EP	2 + 0.5%					
	Metribuzin 75DF + 2,4DB	POD	.25 + .2					

Treated: May 26

Plant size: 10' x 30' (6.67' x 30' treated)

Design: RCB

Soil type: Grenada silt loam

% O.M.: 1.1%

^{1/}Values within a column followed by the same letter(s) are not significantly different at the P = 0.05% according to Duncan's New Multiple Range Test.

SOYBEAN: Glycine max (L.) 'Asgrow A5474'

Gary L. Lentz

Bean leaf beetle: Cerotoma trifurcata (Forster)

West Tenn. Exp. Stn.

Jackson, TN 38301

901-424-1643

CHEMICAL CONTROL OF THE BEAN LEAF BEETLE, 1983: Asgrow A5474 variety soybean was planted June 2 at the Milan Exp. Stn., Milan, TN. Plots were 4 rows (40 in spacing) wide by 40 ft long. Treatments were replicated 3 times in a randomized complete block design. Pretreatment counts were made of the number of bean leaf beetles (BLB) per 10 row ft at 5 locations in each block. Insecticides were applied to V₂ stage soybean on June 16 with a single row hand held CO₂ pressurized sprayer at the rate of 5.1 gal of spray per acre. Counts of BLB were made from 10 row ft on one of the two center rows in each plot 4 and 7 days after treatment.

Pretreatment numbers of BLB averaged 6.8/10 row ft. Four days after treatment, 10 of 12 treatments had suppressed numbers below that in the untreated check. With one exception, there were no significant differences among treatments. The performance of reduced rates of each of the 6 insecticides was not significantly different from the same insecticide applied at higher rates. No control was evident at 7 days after treatment, probably due to interplot movement of adults. No phytotoxicity was observed.

Treatment and lb ai/acre	Mean no. BLB/10 row ft.*	
	4 DAT**	7 DAT
Pounce 3.2EC 0.05	0.00a	2.33
Pounce 0.10	0.00a	0.67
Pydrin 2.4EC 0.10	0.00a	1.67
Guthion 2L 0.38	0.00a	3.00
Sevin 80S 0.5	0.33ab	2.00
Sevin 1.0	0.33ab	3.00
Orthene 75S 0.5	0.33ab	3.00
Pydrin 0.05	0.33ab	2.67
Cygon 400 0.5	0.33ab	1.33
Cygon 400 0.25	0.67ab	0.33
Guthion 2L 0.19	1.33abc	2.00
Orthene 0.75	1.67bc	0.33
Untreated check	2.67c	3.00

* Means followed by the same letter are not significantly different

(P = 0.05) DMRT.

** DAT = days after treatment.

Table 25. Wheat: Test weight of soft red winter wheat varieties evaluated at six locations in 1983.

Charles R. Graves

Variety	Avg.	Greene- ville	Knox- ville	Spring- field	Cross- ville	Jackson	Milan
Weight per bushel							
Auburn	57	55	57	54	58	59	57
Stacy	57	57	55	54	57	60	57
Arthur	57	56	57	52	58	60	57
Wheeler	56	56	53	54	57	60	57
Hunter	56	54	56	51	58	60	58
Coker 916	56	56	53	53	58	59	57
Pioneer 2550	56	56	55	52	57	59	56
Pioneer S76	56	55	55	54	57	59	55
Coker 747	56	55	55	51	58	58	57
Fillmore	56	57	50	54	58	58	57
Nelson	56	55	54	52	57	60	55
Hart	56	55	53	53	57	60	55
Southern Belle	55	53	54	52	58	59	57
5409	55	55	54	51	56	59	55
HW 3006	55	54	52	51	57	59	58
Scottie	55	54	53	52	57	58	56
T-70-309	55	54	49	53	57	60	56
Massey	55	55	51	50	57	58	56
Caldwell	55	53	52	54	56	59	54
Pike	55	51	53	52	56	59	56
Tyler	54	55	52	51	57	57	55
HW 3007	54	51	51	51	57	59	55
Severn	54	53	49	49	57	58	56
T-71-306	53	53	45	51	56	58	56
Coker 762	52	48	52	51	54	56	54
McNair 1006	52	47	50	49	55	57	55

Table 24. Yield and other characteristics of soft red winter wheat varieties evaluated at eight locations in 1983.

Charles R. Graves

Variety	Yield Bu/A	Date headed	Date mature	Plant height In.	Lodging %	Leaf rust rating (0-10) ^{1/}	Mildew rating (0-10) ^{1/}
Fillmore	45	5-17	6-23	44	20	0.1	0.4
Tyler	45	5-12	6-20	43	17	5.7	0.5
Auburn	44	5-14	6-22	40	2	0.1	1.1
Caldwell	42	5-11	6-18	39	45	0.2	0.5
HW 3007	42	5-11	6-20	41	7	2.5	2.2
Wheeler	41	5-11	6-19	40	16	3.0	1.2
Pioneer 2550	40	5-12	6-19	38	21	0.3	1.4
Scottie	39	5-11	6-18	39	18	0.8	0.2
Hart	38	5-11	6-18	39	2	4.6	2.8
Pioneer S76	38	5-13	6-19	38	6	2.7	1.8
Coker 747	38	5-11	6-19	36	35	2.2	1.6
Coker 916	38	5-7	6-17	36	11	0.5	1.0
Massey	36	5-6	6-19	38	43	3.5	1.2
Pike	36	5-10	6-20	39	4	1.7	4.8
Nelson	36	5-7	6-16	38	7	0.1	2.1
Stacy	35	5-9	6-18	42	42	0.3	0.4
Arthur	35	5-9	6-18	39	12	2.5	2.2
HW 3006	34	5-10	6-20	41	15	0.3	6.2
McNair 1003	33	5-7	6-17	38	6	4.1	0.2
T-71-306	32	5-16	6-23	44	29	0.7	0.6
T-70-309	31	5-11	6-20	45	46	2.8	5.6
Coker 762	29	5-8	6-19	31	55	0.0	1.2
Hunter	27	5-5	6-18	31	0	0.2	0.5
Southern Belle	26	5-7	6-18	34	1	2.1	4.4
5409	26	5-8	6-15	34	31	0.8	3.2
Severn	22	5-7	6-17	37	9	7.0	5.8

^{1/} 0 is no disease and 10 is severe.

Table 26. Wheat: Virus disease and cold injury ratings reported on soft red winter wheat varieties at locations where the virus disease and cold injury occurred in 1983.

Charles R. Graves

Variety	Virus disease ^{1/}			Cold Injury	
	Springfield	Milan	Greeneville	Knoxville	Greeneville
	Ratings (1-10) ^{2/}				
Fillmore	4.0	3.4	5.8	1.8	3.4
Tyler	1.0	2.0	1.8	5.2	4.6
Auburn	2.0	1.6	7.0	1.5	3.2
Caldwell	1.2	1.2	5.0	1.2	2.6
HW 3007	2.4	3.9	8.8	4.8	4.0
Wheeler	2.8	2.0	6.5	6.8	5.5
Pioneer 2550	1.2	2.1	4.5	2.0	3.2
Scottie	1.0	1.9	5.2	2.8	5.5
Hart	1.0	1.8	1.8	4.0	2.8
Pioneer S76	1.2	2.2	3.5	3.2	2.2
Coker 747	1.0	1.4	6.5	3.5	4.1
Coker 916	1.1	3.4	3.5	4.5	6.1
Massey	1.0	2.6	1.2	6.0	6.6
Pike	1.6	3.2	8.5	4.5	6.5
Nelson	1.6	2.0	6.8	4.5	4.9
Stacy	1.4	2.6	5.5	3.5	5.4
Arthur	2.4	1.7	7.2	4.2	3.8
HW 3006	1.4	2.2	6.0	7.5	5.5
McNair 1003	5.5	6.0	9.5	6.2	7.0
T-71-306	4.1	2.4	9.0	3.8	4.6
T-70-309	1.8	3.0	8.2	6.5	4.8
Coker 762	7.6	6.0	9.5	7.5	7.1
Hunter	2.0	1.9	6.0	10.0	8.9
Southern Belle	2.0	1.4	7.2	7.8	8.4
5409	1.6	3.6	4.2	7.2	6.4
Severn	7.4	6.6	9.8	9.5	8.2

^{1/} There was a high correlation between Springfield and Milan ratings and very low correlation between these two locations and Greeneville. The virus ratings at Springfield and Milan were made by Howard Reed, Associate Professor, Department of Entomology and Plant Pathology, Knoxville.

^{2/} 1 is no virus and 10 is severe.

Table 26. Wheat: Virus disease and cold injury ratings reported on soft red winter wheat varieties at locations where the virus disease and cold injury occurred in 1983.

Charles R. Graves

Springfield	Knockville	Greeneville
Cold Injury	Cold Injury	Cold Injury

METHODS OF HARVESTING WHEAT

Charles R. Graves

Yields Adjusted to 13.0% Moisture

1. Swathed 40% moisture June 7, 1983 planted soybeans - wheat picked up and combined June 16, 1983 - 14.0% moisture.
Wheat yields - 48.3 bu. per acre
Soybean yields - 12.2 bu. per acre (20" rows)
2. Combine high moisture 35% - June 13, 1983
Planted June 16, 1983
Wheat yields - 48.54 bu./A.
Soybeans yields - 14.33 bu./A. - 10" rows.
3. Combine wheat at 13.8% moisture - June 25, 1983
Planted no-till 20" rows June 25, 1983
Wheat yields - 46.0 bu./A.
Soybean yields - 12.6 bu./A.
4. Combine wheat high moisture 35% - June 13, 1983
Planted beans June 16, 1983
Wheat yields 218 bu. off of 5.2 acres - 41.9 bu. per acre
Soybean yields - 10.38 bu./A.

TMTS. 2 & 4 - total 267 bu.
137.7 gallons of gas to dry this 267 bu. down to 17% moisture
87.9 cents per gallon for gas.
.45¢ per bu.

There was a high correlation between Springfield and Milan ratings and very low correlation between these two locations and Greeneville. The virus ratings at Springfield and Milan were made by Howard Reed, Associate Professor, Department of Entomology and Plant Pathology, Knoxville.

1 is no virus and 10 is severe.

Treatment ^{a/}	Rate (lbs/A)	Ryegrass Control ^{b/}		Wheat ^{b/} Test Wt. (lb/bu)	Yield ^{b/} (Bu/A)
		3-15	5-17		
		------(%)-----			
1. Hoelon 3E	.75	63 b	97 a	48.6 ab	49.7 a
2. Hoelon 3E	1.0	75 a	97 a	52.7 a	53.0 a
3. Hoelon 3E	2.0	80 a	97 a	52.7 a	54.5 a
4. Check	-	0 c	0 b	45.8 b	29.3 b
		CV = 12%	CV = 3%	CV = 7.9%	CV = 9%

Variety: McNair 1003

Planted: November 11, 1983

Treated: March 2, 1983

Plot size: 13 1/3' x 30'

Design: RCB w/3 reps

Sprayer: 8003 tips, 20 gpa, Hi-boy

^{a/}Treated postemergence on March 2, 1983 with Ryegrass at 3-leaf stage and wheat with three tillers (FOA stage 3.5).

^{b/}Values within a column followed by the same letter(s) are not significantly different at the 5% level according to Duncan's New Multiple Range Test.

H-510-82-MES-W

Control of Italian (annual) ryegrass in Wheat with Hoelon, MES,
Milan, TN. 1983

Treatment ^{a/}	Rate lb/A ai	Ryegrass Control ^{b/}			Wheat ^{b/} Test Wt. (lb/bu)	Yield ^{b/} (Bu/A)
		3-2	3-15	5-17		
		----- (%) -----				
1. Hoelon 3EC	1.0	97 a	96 a	96 a	50.4 a	47.8 a
2. Hoelon 3EC	1.5	99 a	93 a	92 a	44.8 b	41.7 a
3. Hoelon 3EC	3.0	99 a	95 a	97 a	51.7 a	44.8 a
4. Control	-	0 b	0 b	0 b	44.6 b	21.9 b
		CV = 3%	CV = 4%	CV = 7%	CV = 10.7%	CV = 23.2%

Variety: McNairy 1003

Planted: November 11

Treated: November 11

Plot size: 13/3' x 30'

Design: RCB w/4 reps

^{a/}Treatments applied prior to seeding and incorporated to a depth of 1 inch with a do-all.^{b/}Values within a column followed by the same letter(s) are not significantly different at the 5% level according to Duncan's New Multiple Range Test.

Treatment	LB/A ai	No. Bulblets/pt	Wheat Yield Bu/A	No-Till Soybean Injury	No-Till Soybean Yield(bu/A)
1 Esteron 99 4E + X-77	.75 + 0.5%	1 b	62	18	14.5
2 Esteron 99 4E + X-77	1.0 + 0.5%	1 b	58	8	17.1
3 Esteron 99 4E + Banvel 4S + X-77	.75 + .12 + 0.5%	1 b	58	11	16.7
4 Esteron 99 4E + Glean 75W + X-77	.75 + .008 (1/8 oz) + .5%	<1 b	55	18	14.3
5 Glean 75W + X-77	.008 (1/8 oz) + .5%	6 b	60	11	13.7
6 Glean 75 + X-77	.016 (1/4 oz) + .5%	1 b	65	11	19.2
7 Glean 75 + X-77	.032 (1/2 oz) + .5%	0 b	65	30	14.3
8 Glean 75 + X-77	.064 (1 oz) + .5%	1 b	60	16	14.3
9 DPX 6376 + X-77	.008 + .5%	<1 b	65	8	16.3
10 DPX 6376 + X-77	.016 + .5%	1 b	60	10	17.2
11 DPX 6376 + X-77	.032 + .5%	<1 b	56	20	15.8
12 DPX 6376 + X-77	.064 + .5%	<1 b	48	30	16.9
13 Weedy check	--	4 b	70	13	17.7
14 Weed free check ^{1/}	--	15 a	58	21	12.8
		CV = 165	14%	99	24%
		LSD .05 = N.S.		N.S.	

No-till "Asgrow A5474" soybeans planted on July 6, 1983 and treated with Bronco at 4 qt/A.

Variety: McNair 1003 wheat

Treated: March 3, 1983; 3:30-4:30 pm; 78° F; wind 5-10 mph SW

Plot size: 13.3' x 30'

Design: RCB w/4 reps

Sprayer: CO₂ 8003 tips; 40 psi; 4 mph, 16 gpa

Wheat: FAO stage 4

^{1/}Refers only to no-till soybeans.

EVALUATION OF FOLIAR FUNGICIDES FOR CONTROL OF GLUME BLOTCH AND OTHER FOLIAGE DISEASES OF WHEAT

Milan Experiment Station, Milan, TN - 1983

H. E. Reed and Albert Y. Chambers

Treatment	Time of application	Disease index rating			Yield, bu./A.
		Glume blotch	Powdery mildew	Leaf rust	
Dithane M-45 80WP, 2 lb./A.	4/19 & 5/4	39.2 b ¹	0	Tr	41.1 a ¹
Dithane M-45 80WP, 2 lb./A. + Bayleton 50 WP, 2 oz./A.	4/19 & 5/4	40.8 b	0	Tr	38.6 ab
Bravo 500, 2 pt./A.	4/19 & 5/4	30.0 c	0	Tr	40.0 ab
Manzate 200 80WP, 2 lb./A. + Benlate 50 WP, 0.5 lb./A.	4/19 & 5/4	38.3 b	0	Tr	39.3 ab
Tilt 3.6EC, 4 fl. oz./A.	4/19 & 5/10	27.5 c	0	Tr	40.2 ab
No foliar fungicide	---	55.8 a	0	Tr	35.6 b
LSD 1%		6.6	-	-	ns
5%		4.4	-	-	ns
10%		3.7	-	-	ns

Plots seeded to McNair 1003 variety with grain drill on October 28, 1982; seeding rate, 1.5 bu./A.; plots sprayed with fungicide treatments on dates shown with an IHC 660 high clearance sprayer; 8005 spray nozzles were spaced 20 in. apart on one spray boom with an extension and extra tips on the boom to cover 13 1/3 ft.; applied 20 gal. water/A. at 30 psi; wheat ranged from stage 8 to 9 of development when first fungicide applications were made on April 19; rates shown are of the formulations used of the fungicides; 6 replications; plots 12 x 50 ft.; randomized complete block design; index ratings of glume blotch severity determined by assessing the percentage of the spike (or head) area affected on June 14; plots were examined for powdery mildew and leaf rust on June 14; harvested June 22, yields corrected to 13.5% moisture; Collins silt loam soil (wheat-grain sorghum, 1982) tested as follows from sample taken December 1, 1982: pH - 5.4, P - M (28), and K - M (130); fertilization consisted of 30-60-60 applied October 26 and 70 lb./A. of N topdressed as urea (150 lb.) on February 28.

¹Mean figures followed by the same small letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).

FUNGICIDE SEED TREATMENTS FOR CONTROL OF SEEDLING DISEASES OF WHEAT

Milan Experiment Station, Milan, TN - 1983

H. E. Reed and Albert Y. Chambers

Treatment	Stand count, 3 ft. of row	Yield, bu./A.
Untreated, 1 bu./A. seeding rate	20.1 b ¹	32.2 a ¹
Terra-Coat L-205, 2 fl. oz./bu.	19.7 b	33.9 a
Baytan + Mobay SAS 9244 (20% + 2.7% WS), 1.44 oz./bu.	17.7 b	32.1 a
Terra-Coat SD-205, 2 oz./bu.	18.2 b	31.0 a
Baytan 150 FS, 1.2 fl. oz./bu.	16.9 b	31.2 a
Baytan 150 FS, 2.4 fl. oz./bu.	17.9 b	34.0 a
Vitavax-25DB, 3.6 oz./bu.	18.3 b	33.2 a
Orthocide Vitavax 20-20 Seed Protectant, 2.4 oz./bu.	18.0 b	34.6 a
Vitavax 200-FF, 2 fl. oz./bu.	17.6 b	32.6 a
Untreated, 1.5 bu./A. seeding rate	29.4 a	35.6 a
LSD 1%	3.9	ns
5%	2.9	ns
10%	2.4	ns

Plots seeded October 28, 1982; Hart variety; treated seed planted at 1 bu./A; Terra-Coat L-205, Baytan + SAS 9244, Baytan (both rates), and Vitavax 200-FF applied as conventional seed treatments on October 28; other treatments applied through drill-box at time of seeding with grain drill; rates shown are of the formulations used of the fungicides; 6 replications; plots 8 x 30 ft.; randomized complete block design; stand counts made December 22, 3 ft. of row was counted at 3 locations at random in each plot; harvested June 22, yields converted to 13.5% moisture; Collins silt loam soil (wheat-grain sorghum, 1982) tested as follows from sample taken December 1, 1982: pH - 6.2, P - M (24), and K - M (150); fertilization consisted of 30-60-60 applied broadcast October 26 and 150 lb./A. urea (70 lb. N) topdressed broadcast on February 28.

¹Mean figures followed by the same small letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).

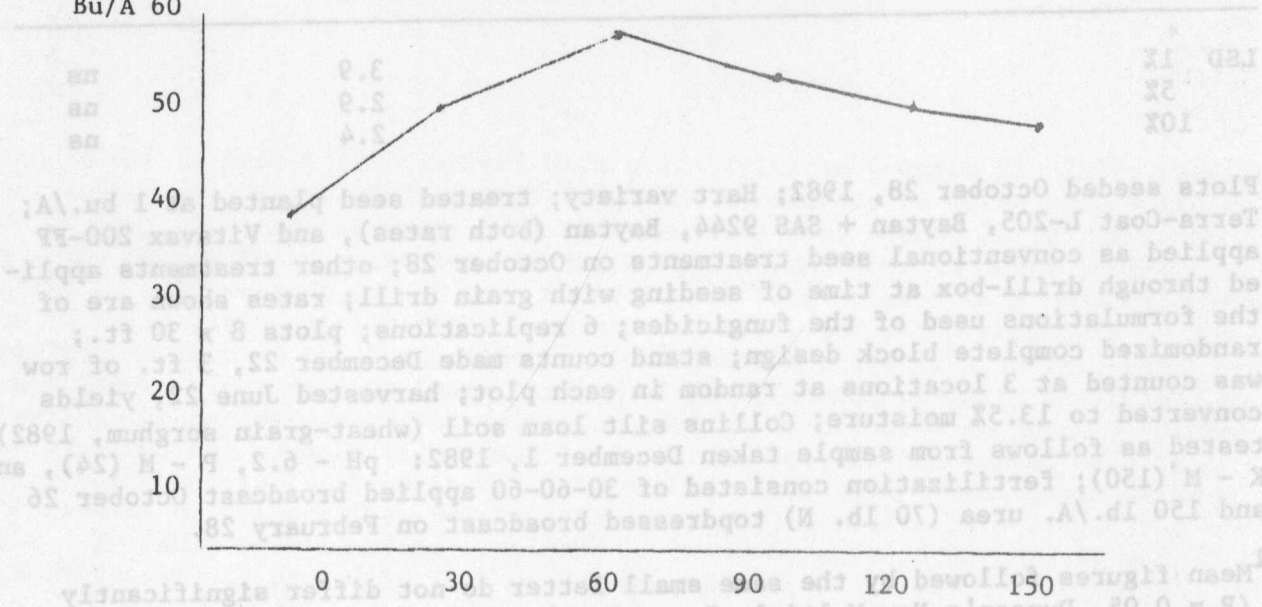
H-414-MES-27-N

Coker 916 and Southern Belle wheat evaluated at Milan at several nitrogen levels in 1983.

N applied in ^{1/} the spring lbs/acre	Coker 916	Yield ^{2/}	Southern Belle Bu/A	Avg. Bu/A
0	34.8	B	38.9	C
30	45.9	AB	49.4	B
60	51.4	A	61.8	A
90	51.8	A	52.4	AB
120	46.4	A	55.7	AB
150	48.8	A	48.7	B
L.S.D. (.05)	6.4		9.5	
C.V. %	9.1		12.3	

Wheat
Yield
Bu/A 60

Response of Coker 916 and Southern Belle to spring applied nitrogen at Milan in 1983.



Rates of N/A applied in the spring.

^{1/}

Wheat was fertilized with 30-60-60 lbs/acre in the fall.

^{2/}

Duncan's multiple range test. Yields followed by the same letter are not significantly different from each other.

Effect of Nitrogen Source & Rate on Wheat Yields 2nd Yr

Don D. Howard

Source	N Rate	Yield* Bu./A.	Moisture %	Plant Hgt. in.	Test Wt** lbs/bu.	Test Wt g/100 seed
A.N.	0	47.8 d	14.0	31.1 d	56.1	3.0 abc
	30	67.6 ab	13.9	39.3 ab	56.2	3.1 a
	60	65.1 abc	13.5	38.6 ab	56.0	2.8 bcd
Urea	90	62.4 bc	12.7	40.6 a	54.7	2.6 d
	30	59.1 c	13.6	36.6 bc	56.6	2.9 abc
	60	63.3	13.5	34.4 c	56.9	3.0 ab
UAN	90	71.3	11.8	40.0 ab	55.9	2.9 abc
	30	61.4	13.5	37.6 abc	56.5	3.0 abc
	60	63.7	13.3	38.3 ab	56.3	2.8 cd
	90	66.1	13.4	38.6 ab	56.1	2.7 d
C.V.		8.9	12.7	6.3	1.8	5.5
LSD	.01	7.0		3.1		0.2
	.05	9.1	NS	4.1	NS	0.3

*60 lbs/bu. (standard) **Volume measurement

Soil type: Loring silt loam

pH 6.2 P - M K - M

Seeded: Coker 747 at 1.5 bu/A

Fertilized with 30-60-60 broadcast on
nitrogen sources applied

Phosphorus Fertilization of Wheat

- 2nd Yr - 1983 -

Don D. Howard

Lbs P ₂ O ₅	Yield*	% H ₂ O	Test Wt	N Rate	Source
0	59.3 b	21.5 b	51.3 b	0	A.N.
40	64.7 a	18.2 a	54.5 a	30	
80	67.2 a	18.7 a	54.8 a	60	
160	69.4 a	17.7 a	56.4 a	90	Urea
CV	6.2	8.9	3.2	60	
L.S.D.	5.4	2.6	2.3	90	UAN
	7.3	3.5	3.1	30	
				60	
				90	

*60 lbs/bu

Loring silt loam

pH - 6.5 P - L K - M

Date seeded:

Coker 747 at 1.5 bu/A

Fert in fall with 30 lbs N and in spring with 45 lbs N as ammonium nitrate

H-414-MES-21 Wheel-Track
Milan 1982-83

Yield of soybeans grown in wheat
wheel track study at Milan in 1983.

Wheat spacing between rows	Yield Bu/A
7"	16.2
14"	15.8
20"	14.6
7" with 14" wheel track	14.5
7" check-no traffic	15.5
L.S.D. (.05)	N.S.
C.V. %	14.1
Avg.	15.3

Effect of Nitrogen Rates & Time of Application for Corn
 Milan 1982-83
 Donald D. Howard

N Lbs/A	Time	1982	1983
		-----bu/A-----	
0		72.7 e	42.4
50	E	108.5 d	73.9
50	L*	98.9 d	79.1
100	E	144.7 c	94.7
100	L	149.7 bc	103.4
150	E	167.0 ab	112.3
150	L	163.1 abc	115.1
200	E	172.2 a	113.1
200	L	176.6 a	113.2
250	E	164.9 abc	107.0
250	L	174.3 a	90.2
	CV	10.3	
	LSD .05	18.8	9
	.01	24.9	12
*Days after planting:		32 days	35 days

Soil type: Collins silt loam

Variety: Pioneer 3147

Plant population: 19,000 20,700

Planting date: 4-12-82 4-22-83

pH 6.9 P - M K - M

Harvested

[illegible]

Table 1. Corn: Yield of 40 medium-season hybrids evaluated at six locations in 1983.

Charles R. Graves									
Color	Cross	Hybrid	Avg.	Greene-1/	Knox-2/	Spring3/	Spring-4/	Milan5/	Martin6/
				ville	ville	Hill	field		
Bushels per acre									
y	2X	Pioneer brand 3320	123	94	146	92	146	139	71
y	2X	Pioneer brand 3147	120	92	149	83	150	129	64
y	2X	McCurdy 8150	119	89	135	85	147	138	77
y	2X	Beck's 85XA	118	86	155	88	153	110	68
y	2X	DeKalb Exp.-370	118	87	146	82	149	128	63
y	2X	FFR 848C	115	90	129	98	135	124	76
y	2X	O's Gold 5291	115	84	143	80	151	116	68
y	2X	Pioneer brand 3184	115	89	144	91	144	106	84
y	2X	Zimmerman Z-24Y	114	89	132	80	148	122	87
y	2X	DeKalb DK-747	114	79	149	72	145	124	62
y	M2X	Coker 19A	113	84	142	86	137	116	64
y	2X	McCurdy 84AA	111	94	138	82	131	110	68
y	M2X	GK 8798/	111	92	134	86	130	112	78
y	2X	Pioneer brand 3369A	110	80	131	87	138	115	69
y	2X	RA 1502	110	96	137	79	137	101	83
y	M2X	Pioneer brand 3187	109	84	130	83	119	129	58
w	3X	O's Gold 2580W	109	76	141	74	149	102	44
w	M3X	Funk G-4779W	107	84	139	64	151	99	43
y	2X	Golden Harvest H-2680	107	91	143	62	130	109	52
y	M2X	Funk G-4733	107	96	131	65	138	105	70
y	2X	Golden Harvest H-2686	106	72	141	67	141	110	56
y	M2X	Pioneer brand 3328	106	80	117	90	125	118	64
y	2X	McCurdy 7978	106	85	120	82	136	106	84
y	2X	Coker 21	106	79	137	64	143	106	82
y	2X	O's Gold SX5509	105	90	137	65	134	97	67
y	2X	Asgrow RX777	105	84	142	82	134	79	67
y	2X	FFR 811C	105	93	123	85	133	90	74
y	M2X	Funk G-4734	104	77	133	71	130	108	59
y	2X	RA 1604	103	77	144	67	127	101	56
y	2X	P.A.G. SX354	102	98	130	75	127	82	78
y	2X	USS 1515	102	75	131	80	133	93	66
y	2X	Funk G-27629	102	69	136	59	138	107	67
y	2X	DeKalb XL71	101	84	124	81	116	102	69
y	2X	P.A.G. SX351	101	82	128	69	126	100	75
y	2X	O's Gold 5255	101	88	117	73	128	98	54
w	3X	DeKalb XL390B	101	78	131	56	141	98	61
y	2X	VaOM73 x T232	99	73	132	75	119	96	41
y	2X	VaOM73 x N132	99	80	136	54	124	72	66
y	2X	N.K. PX9527	92	78	110	75	116	83	65
y	2X	N.K. PX79	91	72	128	58	132	67	67
L.S.D. (.05)			7.1	15.4	13.4	14.2	13.9	22.4	26.3
C.V. %			10.7	13.0	7.1	13.4	7.3	15.2	28.5
Avg.			107.4	84.3	134.8	76.2	135.8	106.2	66.7

- ^{1/} Hermitage silt loam (2% to 5% slopes). ^{7/} Martin data not included in state avg. due to high c.v.
^{2/} Sequatchie loam (2% to 5% slopes).
^{3/} Maury silt loam (2% to 5% slopes). ^{8/} AgraTech seed - formerly Gold Kist.
^{4/} Huntington silt loam (2% to 5% slopes).
^{5/} Collins silt loam (2% to 5% slopes).
^{6/} Collins silt loam (2% to 5% slopes).

Table 2. Corn: Yield and other characteristics of 40 medium-season hybrids evaluated at six locations in 1983. Charles R. Graves

Color	Cross	Hybrid	Yield Bu/A	Erect plants %	Grain quality rating ^{1/}	Husk cover rating ^{1/}	Ear ht. in.	Grain moisture at harvest
								%
y	2X	Pioneer brand 3320	123	97	2.6	3.7	51	21.2
y	2X	Pioneer brand 3147	120	94	4.5	4.3	56	23.0
y	2X	McCurdy 8150	119	92	3.2	3.3	58	22.6
y	2X	Beck's 85XA	118	95	3.0	2.5	51	22.2
y	2X	DeKalb Exp-370	118	98	3.7	4.8	53	20.8
y	2X	FFR 848C	115	93	3.2	3.2	58	20.7
y	2X	O's Gold 5291	115	91	3.6	3.3	48	21.6
y	2X	Pioneer brand 3184	115	99	3.5	4.8	48	22.6
y	2X	Zimmerman Z-24Y	114	88	2.9	4.3	50	20.1
y	2X	DeKalb DK-747	114	99	3.9	3.0	56	23.3
y	M2X	Coker 19A	113	92	3.9	3.5	54	21.3
y	2X	McCurdy 84AA	111	90	3.4	3.7	52	22.4
y	M2X	GK 879 ^{3/}	111	92	3.1	3.3	55	20.4
y	2X	Pioneer brand 3369A	110	88	3.4	3.8	51	18.7
y	2X	RA 1502	110	96	3.6	4.5	52	21.4
y	M2X	Pioneer brand 3187	109	99	3.1	3.2	54	23.2
w	3X	O's Gold 2680W	109	93	3.5	3.8	52	24.7
w	M3X	Funk G-4779W	107	92	3.2	2.5	58	24.3
y	2X	Golden Harvest H-2680	107	93	3.5	3.8	52	24.7
y	M2X	Funk G-4733	107	96	3.1	3.2	53	23.2
y	2X	Golden Harvest H-2686	106	88	3.7	4.3	52	23.6
y	M2X	Pioneer brand 3328	106	98	4.2	4.2	50	20.7
y	2X	McCurdy 7978	106	91	3.7	3.7	53	21.1
y	2X	Coker 21	106	88	4.0	3.3	51	24.0
y	2X	O's Gold SX5509	105	92	3.7	4.3	50	24.1
y	2X	Asgrow RX777	105	92	3.5	4.7	50	19.6
y	2X	FFR 811C ^{2/}	105	92	3.8	4.3	48	19.3
y	M2X	Funk G-4734	104	95	2.9	3.8	53	24.3
y	2X	RA 1604	103	96	3.8	3.3	48	24.0
y	2X	P.A.G. SX354	102	94	3.1	4.3	46	20.5
y	2X	USS 1515	102	92	3.8	3.5	48	21.6
y	2X	Funk G-27629	102	95	4.1	3.8	51	24.6
y	2X	DeKalb XL71	101	91	3.9	4.0	50	20.7
y	2X	P.A.G. SX351	101	93	4.7	5.0	52	19.6
y	2X	O's Gold 5255	101	94	4.6	3.8	51	17.8
w	3X	DeKalb XL390B	101	93	4.4	2.8	56	22.7
y	2X	VaOM73 x T232	99	95	3.0	2.7	56	22.8
y	2X	VaOM73 x N132	99	92	5.1	3.3	47	20.0
y	2X	N.K. PX9527	92	94	4.7	4.3	46	17.2
y	2X	N.K. PX79	91	96	5.0	4.2	51	19.7

^{1/} Rating was based on a scale of 1 through 9 with 1 being excellent and 9 poor.

^{2/} Bag of seed was labeled FFR 811 and form was labeled 811C.

^{3/} Agratech seed - formerly Gold Kist.

Thiocarbamate herbicides for the control of johnsongrass in corn.

<u>Treatment</u>	<u>Rate</u> pounds/acre	<u>Corn grain yield</u> Bu/acre	<u>johnsongrass control</u> %
Atrazine + Lasso + hand hoeing	2 + 2	62	100
Eradicane extra*	4	64	92
Eradicane extra	6	49	80
Sutan*	4	42	78
Sutan + Bladex	4 + 1.5	56	85
Ro-neet	4	30	70
Ro-neet	6	37	82
Ro-neet + Bladex	3 + 1	43	52
Ro-neet + Bladex	4 + 1	39	75
Ro-neet + Bladex	3 + 2	38	80
Weedy Check		25	5
CV		23	18

* Eradicane extra and the sutan contained the experimental antidote R-29148

Corn hybrid: Pioneer brand 3147
 Planting date: April 21
 Herbicides applied: April 21
 Spray Volume: 28 gpa

Incorporation of thiocarbamates: PTO rototiller.

Notes: Among the herbicide treatments, Eradicane extra at 4 lbs/acre gave the highest yield and the most complete johnsongrass control. Among the Ro-neet (cycloate) treatments, at least 4 lbs/A were required for johnsongrass control, but yields were reduced at 4 lbs/Acre or more.

TN-575-MES-83-5

W. A. Krueger

Table 42. Grain Sorghum: Yield and other characteristics of 10 varieties evaluated at Milan in 1983.

Charles R. Graves

Variety	Yield	Head type	Plant ht.	Head exertion	Moisture at harvest
	Bu/A	Rating ^{1/} (1-3)	in.	in.	%
Funk G-522DR	78	2	64	5	15.8
Funk G-1711	74	2	62	9	15.6
Helena 1330DR	70	2	65	8	15.5
Funk G-550	67	2	59	7	15.1
DeKalb DK-64	63	2	64	10	17.3
Funk G-611	62	3	52	9	16.2
Funk G-522A	61	2	75	9	15.1
Funk G-1400	59	2	57	12	16.6
DeKalb DK-42y	56	1	63	10	17.7
DeKalb DK-59	51	2	64	6	17.7
L.S.D. (.05)	14.5				
C.V. %	15.5				
Avg.	64				

^{1/} Rating based on a scale of 1=tight, 2=medium and 3=open type head.

Table 43. Grain Sorghum: Yield and other characteristics of non-bird resistant varieties evaluated at Springfield in 1983. ^{1/}

Variety	Yield	Plant ht.	Head type	Lodging
	Bu/A	in.		%
Funk G-522A	68	36	open	0
Funk G-550	61	36	medium	0
Funk G-611	60	37	medium	0
DeKalb 42y	60	38	medium	0
Funk G-522DR	60	35	medium	0
Helena 1330DR	58	39	medium	0
DeKalb DK-59	57	36	medium	4
Funk G-1711	55	36	tight	0
DeKalb DK-64	54	38	tight	19
Funk G-1400	53	38	open	0
L.S.D. (.05)	7.6			
C.V. %	10.8			

^{1/} Dickson silt loam (2% to 5% slopes).

Yield of grain sorghum at two levels of furadan
at Milan in 1983

		Bu/Acre				Yield
		1	2	3	4	Bu/A
1 lb. Furadan/A	001	119.8	117.8	121.3	115.2	118.5
2 lbs. Furadan/A	002	114.0	114.8	117.1	119.0	116.2
Check	003	105.6	116.3	109.0	137.8	117.2
				L.S.D. (.05)		N.S.
				C.V. %		7.5
				Avg.		117.3

Co-op exp. grain sorghum varieties evaluated at Milan in 1983.

Variety	Head type	Yield Bu/A	Plant height in.	Head ext. in.	Lodging	Moisture at harvest
Co-op Exp. 124	O	102.2	56	8	0	16.2
Asgrow 712	M	102.1	58	9		17.1
Funk G-522DR	M	99.9	58	8	0	16.4
Co-op 1174	T	93.6	59	7	0	16.8
Co-op Exp. 126BR	M	90.1	52	8	0	16.9
Co-op Exp. 125C	M	85.6	51	10	0	16.5
FFR-331	T	84.0	66	8½	0	17.1

1983
Milan
Grain Sorghum Row Spacing at Three Planting Dates

Row Spacing Between Rows	Planting date			Avg.
	May 15	June 1	June 15	
	Bushels per acre			
10"	85.4	71.7	78.3	78.5
20"	76.0	78.8	73.9	75.2
40"	84.1	92.5	82.0	86.2
L.S.D. (.05)	3.6	7.5	N.S.	
C.V. %	2.5	5.3	7.7	
Avg.	81.8	81.0	78.0	

Nitrogen Fert. of Grain Sorghum Milan

Donald D. Howard

Lb N/A	Source	Time of Application	Yield (Bu/A)		Avg.
			1982	1983	
0	Urea	Planting	44.6 e	10.6 c	28
30	Urea	Planting	62.6 d	24.8 bc	44
60	Urea	Planting	74.0 bc	36.7 ab	55
90	Urea	Planting	79.2 ab	41.0 ab	60
120	Urea	Planting	86.4 a	53.9 a	70
60	A.N.	Planting	73.6 c	32.4 b	53
90	A.N.	Planting	83.3 a	36.9 ab	60
60	A.N.	Late*	73.8 bc	42.5 ab	58

L.S.D. .01 10 21
.05 7 16

C.V. 8.4 40

*27 days 29

Collins silt loam
Planting date
20" rows
Funks 522DR

June 15 June 27

Lint yields of 6 hybrid cottons and 4 cotton varieties grown at three Tennessee locations in 1983

Entry	Average	Yield per acre		Ames Plantation
		Jackson	Milan	
-----Lbs.-----				
Deltapine 733	753	734	851	673
Stoneville 825	717	645	765	741
McNair 235	692	691	677	708
Coker 3131	687	602	708	750
KN H-1	676	654	692	682
RA 433	613	616	632	590
RAX 4535	587	527	641	594
RAX 4543	556	518	574	577
RAX 4063	540	525	578	516
RAX 4002	535	487	531	586
Average	635	599	664	641
Min. L.S.R. .05		110.3	119.0	99.3
Max. L.S.R. .05		129.6	139.9	116.7
C.V. %		15.8	15.4	13.3

Gin and boll characteristics of 6 hybrid cottons and 4 cotton varieties grown at three Tennessee locations in 1983.

Entry	Gin turnout	Lint percentage	Boll size
	%	%	gms/boll
KN H-1	36.8	39.5	6.30
RAX 4002	32.0	36.5	6.40
RAX 4063	33.2	36.9	6.02
RA 433	35.9	38.1	5.89
RAX 4543	33.4	36.2	6.02
RAX 4535	33.2	35.1	6.50
McNair 235	36.5	39.7	5.42
Stoneville 825	37.8	39.8	6.03
Deltapine 733	37.0	39.6	6.09
Coker 3131	38.3	42.3	5.62
Average	35.4	38.4	6.03

LINT QUALITY OF 10 ENTRIES IN THE HYBRID
STRAINS TESTS GROWN IN TENNESSEE IN 1983

Phil E. Hoskinson

ENTRY	JACKSON ¹			AMES PLANTATION ²			MILAN ³		
	Grade	Staple 32's	Micro: naire:	Grade	Staple 32's	Micro: naire:	Grade	Staple 32's	Micro naire
KNH-1	41	34	4.9	41	35	4.7	41	35	4.4
RAX 4002	41	33	4.2	50	35	4.0	41	34	3.5
RAX 4063	41	33	4.9	41	34	4.3	41	33	3.5
RA 433	41	34	3.9	41	34	3.5	41	33	2.8
RAX	41	33	4.0	50	35	3.7	50	34	3.0
RAX 4535	41	33	4.4	50	35	4.0	50	34	3.0
McNair 235	50	34	4.2	50	34	4.5	50	34	3.7
Stoneville 825	41	35	4.8	50	34	4.9	41	34	4.3
Deltapine 733	31	33	5.4	41	35	5.1	41	34	4.3
Coker 3131	42	33	5.0	51	34	4.4	50	33	4.1
Average		33.5	4.557		34.5	4.31		33.8	3.66

1. Memphis Silt Loam (0% to 2% slopes).
Planted May 9; one only harvest October 6.
2. Memphis Silt Loam (2% to 5% slopes).
Planted May 6; more than 90% obtained at first harves on Oct. 4.
3. Collins Silt Loam (0% to 2% slopes).
Planted May 10; one only harvest on Oct. 3.

This test was defoliated by alternaria, cercosperi sp. leafspot diseases.

LINT YIELD AND OTHER CHARACTERISTICS OF 16 ENTRIES GROWN IN THE ADVANCED STRAINS TEST AT MILAN, TN. IN 1983.

Phil E. Hoskinson

Entry	Yield/Acre		Gin Turnout %	Grade	Lint Quality	
	Total lbs.	1st Pick %			Staple 32's	Micronaire
Stoneville 8174	1038	87	37.9	50	36	4.6
Stoneville 6453	1012	91	38.5	50	35	4.2
McNair 235	995	91	36.7	50	35	4.4
Stoneville 0328	991	89	39.6	50	35	4.4
Stoneville 825	937	85	36.5	41	36	4.6
Stoneville 3716	932	89	37.7	41	35	4.3
Coker 80-125	931	91	37.1	51	34	4.1
Deltapine 102	925	88	38.0	31	35	4.3
Deltapine 190	914	90	36.0	41	35	4.3
KNX 8914	911	86	37.1	40	35	4.2
KNX 9142	904	89	35.7	40	36	4.4
Coker 80-123	877	90	37.3	50	35	4.2
Deltapine 140	871	88	36.4	50	35	4.8
Coker 80903	863	89	37.1	41	35	3.8
KNX 8136	833	92	35.9	50	35	4.2
T77-1	800	86	34.7	50	35	4.4
Average	920.9	88.8	37.01		35.1	4.33
Min. L.S.R. .05	100.9					
Max. L.S.R. .05	124.5					
C.V. %	9.5					

Collins Silt Loam (0% to 2% slopes)

Planted May 10; harvested Sept. 30 and Nov. 1.

SOIL FUNGICIDES FOR COTTON SEEDLING DISEASE CONTROL

Milan Experiment Station, Milan, TN - 1983

Albert Y. Chambers

Treatment	Stand, 120 ft.		Skip index		Vigor rating		Yield, lb./A. lint	
							1st picking	Total
No soil fungicide	61	c ¹	43.3	c ¹	8.3	b ¹	360 b ¹	456 c ¹
Terraclor Super-X 10-2.5G, 10 lb./A.	65	bc	54.2	bc	8.7	a	358 b	472 bc
Temik-Terraclor Super-X 5-10-2.5G, 10 lb./A.	94	a	67.5	a	9.0	a	516 a	587 ab
Temik-Terraclor Super-X 5-10-2.5G, 8 lb./A.	90	a	63.3	ab	8.7	a	547 a	610 a
Temik 15G, 3.33 lb./A	78	abc	60.0	ab	8.9	a	500 a	579 abc
Vitavax 4G, 6.25 lb./A.	86	ab	60.8	ab	8.8	a	448 ab	561 abc
Temik-Vitavax 7.5-2G, 6 lb./A.	88	a	65.0	ab	8.8	a	542 a	629 a
Temik-Vitavax 5-2.6G, 9 lb./A.	99	a	65.0	ab	8.8	a	490 a	559 abc
LSD 1%	28		14.8		0.4		155	ns
5%	21		11.0		0.3		115	115
10%	18		9.2		0.2		96	96

Stoneville 213 variety planted, and fungicide treatments applied in-furrow on April 26; stand counts completed June 24, 2 rows of each plot counted; skip index figures are percentages of an acceptable stand on July 29; vigor ratings made September 23 (plants in each plot were rated for vigor using a scale of 0 being dead or dying and 10 being most vigorous); harvested October 3 and 31; plots 4 rows (40") x 60 ft.; 6 replications; randomized complete block design; Vicksburg silt loam soil (cotton, 1980-82) tested as follows from sample taken December 1, 1982: pH - 6.1, P - H (40), and K - H (170); fertilization consisted of 60-80-80 applied March 25; Prowl (1.5 pt./A., Do-All incorporated) and Cotoran (1 lb. ai/A., preemerged) applied for weed control on April 26.

¹Mean figures followed by the same small letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).

PIX PLANT GROWTH REGULATOR AND COTTON BOLL ROT CONTROL

Milan Experiment Station, Milan, TN - 1983

Albert Y. Chambers

Treatment and rate/A.	Plant height (in.)	% Rotted bolls	Yield, lb./A. lint	
			1st picking	Total
60 lb. N:				
No Pix	36 a ¹	Tr	882 ab ¹	1056 a ¹
Pix, 1 pt. (7/26)	25 d	Tr	858 b	1022 a
Pix, 1 pt. (8/3)	30 bc	Tr	844 b	1042 a
Pix, 1.5 pt. (8/3)	28 bcd	Tr	855 b	1011 a
120 lb. N:				
No Pix	36 a	Tr	944 a	1099 a
Pix, 1 pt. (7/26)	26 cd	Tr	873 b	1054 a
Pix, 1 pt. (8/3)	31 b	Tr	874 b	1078 a
Pix, 1.5 pt. (8/3)	28 bcd	Tr	865 b	1015 a
LSD 1%				
	6	--	ns	ns
5%	4	--	ns	ns
10%	3	--	ns	ns

Stoneville 825 variety planted May 17, replanted May 26; growth regulator treatments made when cotton plants were about 21 inches tall on July 26 and at early to mid-bloom on August 3 with a high clearance sprayer with 3 nozzles per row; main-plots 12 rows (40") x 40 ft., sub-plots 6 rows (40") x 40 ft.; 6 replications; split-plot design; harvested October 3 and 31; height of plants (25 plants at random in each plot measured from soil to tip of bud) and rotted boll determinations made after second picking; Collins silt loam soil (soybeans, 1980-82) tested as follows from sample taken December 1, 1982: pH - 6.1, P - M (28), and K - M (110); fertilization consisted of 60-80-80 applied broadcast on March 25 plus 60-0-0 topdressed broadcast on plots that received 120 lb. of N/A. on July 5; Prowl (1 1/2 pt./A., Do-All incorporated) and Cotoran (1 lb. ai/A., preemerged) applied for weed control.

¹Mean figures followed by the same small letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).

REACTION OF COTTON VARIETIES TO VERTICILLIUM WILT

Milan Experiment Station, Milan, TN - 1983

Albert Y. Chambers

Variety	Wilt rating, 10/4/83	Yield, lb./A. lint	
		1st picking	Total
McNair 235	0	766 a ¹	968 a ¹
Coker 3131	0	665 ab	884 ab
Stoneville 825	0	717 ab	878 ab
McNair 220	0	707 ab	876 ab
Stoneville 506	0	703 ab	854 ab
Deltapine 62	0	566 bc	837 ab
Coker 304	0	669 ab	837 ab
Deltapine 41	0	666 ab	827 ab
QS 137	0	643 ab	825 ab
Delcot 311	0	656 ab	814 ab
Stoneville 213	0	595 bc	809 ab
Deltapine 733	0	604 bc	801 b
Hancock	Tr	570 bc	720 bc
Deltapine 55	0	495 c	644 c
LSD 1%	-	168	ns
5%	-	127	139
10%	-	106	117

Planted May 10 and 11; replanted May 27; plots 2 rows (40") x 30 ft.; 6 replications; randomized complete block design; harvested October 4 and October 31; plots examined for wilt injury on several dates with final observations on October 4; Falaya silt loam soil (cotton, 1980-82) tested as follows from sample taken December 1, 1982: pH - 5.8, P - M (24), and K - M (120); fertilization consisted of 60-80-80 applied broadcast March 24; Prowl (1 1/2 pt./A., Do-All incorporated) and Cotoran (1 lb. ai/A., preemerged) applied for weed control.

¹Mean figures followed by the same small letter do not differ significantly (P = 0.05, Duncan's New Multiple Range Test).

Plant Growth Regulators and Defoliants on Cotton at Milan, 1983.

Treatment Number	Bolls open when treatments applied	Prep applied	DEF	Dropp	Yield		First Pick
					Seed Cotton	Lint	
	%	gal/acre	pts/A	lbs/A	lbs/A	lbs/A	%
1	50	$\frac{1}{2}$			2170	864	88
2	Control				1990	698	71
3	50	$\frac{1}{2}$			1880	627	100
4	Control				1900	632	100
5	30	$\frac{1}{2}$			1820	678	83
6	30	$\frac{1}{4}$			1940	695	84
7	30	$\frac{1}{4}$	1.5		2130	764	81
8	30	$\frac{1}{4}$	1.5	0.15	2050	756	83
9	30	$\frac{1}{4}$	1.5	0.08	1880	642	82
10	50	0	1.5	0.15	2170	773	78
11	50	0	1.5	0.08	2000	684	77
12	50	0	0.8	0.15	2074	674	73
13	50	$\frac{1}{2}$		0.3	2200	744	84
14	50	$\frac{1}{4}$		0.3	2134	753	79

The 30% open boll treatments were applied September 12. The 50% open boll treatments were applied September 19.

Treatments were picked September 30 except treatments 3 and 4, all treatments were picked October 10.

Ethephon treatments (Prep) tended to increase the cotton picked in the first picking but did not increase total yield. Def alone gave adequate defoliation, but Def + Dropp combinations resulted in less regrowth.

TN-576-MES-83-1

W. A. Krueger, P. E. Hoskinson and Tom McCutchen

Trumpetcreeper response to postemergence herbicides,
Milan Experiment Station, 1982 and 1983.^a

Treatments	Trumpetcreeper Response							
	Time After Application							
	1982				1983			
	2 Weeks		4 Weeks		2 Weeks		4 Weeks	
	------(%)-----							
Acifluorfen	28	abc	3	bc	93	a	45	b
Bentazon	8	cd	18	bc	26	de	15	e
2,4-DB	10	cd	18	bc	20	e	0	f
Dinoseb	10	cd	5	bc	75	bc	28	d
Dinoseb + alachlor	20	abcd	3	bc	69	c	43	bc
Dinoseb + naptalam	15	bcd	6	bc	73	c	40	bc
Glyphosate	33	ab	38	a	84	ab	90	a
Linuron	14	bcd	0	c	33	d	0	f
Metribuzin	15	bcd	20	b	28	de	13	e
Metribuzin + 2,4-DB	36	a	15	bc	34	d	15	e
Naptalam + 2,4-DB	10	cd	15	bc	20	e	0	f
Oxyfluorfen + 2,4-DB	20	abcd	5	bc	20	e	10	rf
Paraquat	35	ab	15	bc	79	bc	33	cd
Weedy check	0	d	0	c	0	f	0	f

^aMeans within a column followed by the same letter are not significantly different at the .05 level by Duncan's multiple range test.

TN-575-MES-83-1

S. L. Pyle, W. A. Krueger and Tom McCutchen

Trumpet creeper control following glyphosate and SC-0224 applications in 1982, Milan Experiment Station.^a

Treatment ^b	Rate (kg/ha)	Trumpet creeper Control		
		July 13, 1982	Sept. 8, 1982	Sept. 26, 1983
		------(%)-----		
Glyphosate	3.4	100 a	100 a	100 a
SC-0224	2.2	100 a	100 a	100 a
SC-0224	3.4	100 a	100 a	100 a
SC-0224	4.5	100 a	100 a	100 a
Weedy check	---	0 b	0 b	0 b

^aMeans within a column followed by the same letter are not significantly different at the .05 level by Duncan's multiple range test.

^bTreatments applied July 9, 1982.

TN-575-MES-83-3

S. L. Pyle, W. A. Krueger and Tom McCutchen

Control of trumpetcreeper in non-cropped areas following herbicide applications in 1982, Milan Experiment Station.^a

Treatments ^b	Trumpetcreeper Control Time After Application		
	1 Week	6 Weeks	15 Months
	----- (%) -----		
2,4-D	89 a	100 a	20 c
Dicamba	100 a	100 a	96 a
Fosamine	31 cd	21 c	95 a
Glyphosate	15 de	96 a	98 a
Hexazinone	70 ab	43 b	40 b
Prometon	93 a	28 c	15 c
SC-0224	45 bc	90 a	94 a
Sulfometuron methyl	11 de	21 c	15 c
Tebuthiuron	29 cd	16 c	48 b
Triclopyr	100 a	100 a	83 a
XRM-4660	94 a	100 a	75 a
Weedy check	0 e	0 d	0 c

^aMeans within a column followed by the same letter are not significantly different at the .05 level by Duncan's multiple range test.

^bTreatments applied July 21, 1982.

TN 575-MES-83-4

S. L. Pyle, W. A. Krueger and Tom McCutchen

Trumpetcreeper suppression^a with paraquat, Ames
Plantation and Milan Experiment Station, 1982
and 1983.

Treatments ^b	Trumpetcreeper Suppression							
	Weeks After Initial Application							
	0	2	4	6	8	10	12	14
	----- (%) -----							
Paraquat (1 application)	0*	70	35	10	0	0	0	0
Paraquat (4 week intervals)	0*	70	35*	70	35*	80	45	20
Paraquat (2 week intervals)	0*	70*	70*	80*	80*	80*	80	45
Weedy check	0	0	0	0	0	0	0	0

^aPlant suppression occurred after each paraquat application
but regrowth always occurred.

^bParaquat (0.6 kg/ha) + surfactant (1.5 ml/liter).

*Paraquat applied.

TN-575-MES-83-2

S. L. Pyle, W. A. Krueger and Tom McCutchen

Table 1. Description of tillage and planting implements evaluated and soil conditions characterizing the test plots

Implement	Effective width (ft)	Description	Soil Surface Condition	Depth of Operation (in)	Gear Setting with No. Reps	Soil ¹ Type
Chisel plow	9	9 shanks equipped with 2-inch chisel points 3-point hitch mounted	Firm surface with soybean stubble plus heavy green vegetative cover	10-12	3L-20 4L-20 5L-19	Memphis
Heavy tandem disk harrow	14	22-inch notched disk blades in front 22-inch smooth disk blades in rear 9-inch disk spacing	A) Moderately firm surface chisel plowed approx. 2 months earlier, light vegetative cover B) Loosely tilled, moderately cloddy with heavy plant residue, chisel plowed immediately before disking	7-8 7-8	3I-15 4I-11 5I-13 3I-16 4I-16 5I-16	Loring Memphis
Light tandem disk harrow	12	20-inch notched disk blades in front 20-inch smooth disk blades in rear 7-inch disk spacing	A) Loosely tilled with few clods and some green plant residue B) Thoroughly tilled, cloddy with considerable plant residue mixed in tillage zone	5-6 5-6	3I-18 4I-20 5I-20 4I-14 5I-12 6I-12	Loring Memphis
Soil pulverizer	13	19 field cultivator tines plus clod pulverizer plus spike-tooth harrow	Thoroughly tilled soil surface with some plant residue	6-7	3I-12 4I-12 5I-12	Lexington
Cultimulcher	13.6	25 field cultivator tines plus 2 rows of rollers	Thoroughly tilled soil surface with virtually no plant residue	4-5	4I-21 5I-18 6I-14	Lexington
Row-crop planter	13.3	4 rows with 16-inch diameter ripple coulter plus double disk furrow openers plus 12-inch double press wheels 3-point hitch mounted	Thoroughly tilled soil surface	—	3H-18 4H-15	Lexington
Drill seeder	13.3	24 seed tubes equipped with double disk furrow openers and single press wheels plus 1 pair tire track scratchers (S-cultivator tines) plus 2 ground driven wheels 3-point hitch mounted	Thoroughly tilled soil surface	—	3H-12 4H-11	Lexington

¹All soils are silt loams.

ENERGY INPUTS TO IMPLEMENTS, Milan Experiment Station, 1983
F. D. Tompkins, W. E. Hart, L. R. Wilhelm, J. B. Wilkerson

Table 2. Energy requirements of selected tillage and planting implements operated at various ground speeds with a 100-ptohp tractor.

Implement ¹	Gear Selection	Ground Speed (mph)	Drive Wheel Slip %	Drawbar Pull (lbs)	Drawbar Power (hp)	Implement Energy Input (dphp-hr/ac)	Axle Power (hp)	Tractive Efficiency (%)	Fuel Consumption Gal/hr	Fuel Consumption Gal/ac	Moisture Content (% d.b.)
Heavy tandem ² disk harrow	3I	2.68	11.6	3929	28.1	6.18	47.6	59.0	3.97	0.88	19.5
	4I	3.78	12.1	4216	42.5	6.62	68.9	61.8	5.03	0.79	
	5I	4.31	13.4	4312	49.5	6.77	82.9	59.8	5.96	0.82	
Light tandem ³ disk harrow	3I	2.82	6.9	2421	18.2	4.44	35.7	51.3	3.42	0.83	17.2
	4I	3.95	8.0	2519	26.5	4.62	53.5	49.7	4.25	0.74	
	5I	4.52	9.0	2553	30.8	4.67	62.5	49.3	4.66	0.71	
Chisel plow	3L	1.85	14.9	5518	27.2	13.40	41.6	65.7	3.68	1.82	20.8
	4L	2.59	16.4	5815	40.2	14.19	62.0	64.8	4.67	1.65	
	5L	2.89	19.1	6201	47.7	15.15	75.0	63.7	5.49	1.75	
Heavy tandem ⁴ disk harrow	3I	2.75	9.2	3680	27.0	5.78	44.9	60.8	3.92	0.84	17.0
	4I	3.88	9.9	4035	41.7	6.34	65.5	64.0	4.94	0.75	
	5I	4.45	10.6	4049	48.0	6.35	77.3	62.3	5.66	0.75	
Light tandem ⁵ disk harrow	4I	4.02	6.5	2386	25.6	4.37	48.9	52.6	3.92	0.67	14.0
	5I	4.66	6.3	2497	31.0	4.58	58.3	53.5	4.43	0.66	
	6I	6.26	8.5	2755	46.0	5.05	84.7	54.7	5.95	0.65	
Soil pulverizer	3I	2.89	4.6	2853	22.0	4.82	33.7	65.3	3.44	0.75	11.4
	4I	3.97	7.7	3707	39.2	6.26	59.6	66.0	4.58	0.73	
	5I	4.46	10.4	4324	51.3	7.30	77.2	66.6	5.58	0.80	
Cultimulcher	4I	4.09	4.8	1867	20.4	3.02	36.3	56.4	3.51	0.52	9.7
	5I	4.73	4.8	1892	23.9	3.06	46.6	51.2	3.89	0.50	
	6I	6.54	4.5	2596	45.2	4.19	71.9	62.8	5.54	0.51	
Cultimulcher	4I	4.12	4.3	1910	20.9	3.08	34.2	61.3	3.45	0.51	7.6
	5I	4.72	5.1	2018	25.3	3.25	40.6	62.2	3.66	0.47	
	6I	6.46	5.8	2014	34.6	3.25	57.2	60.3	4.58	0.43	
Row-crop planter	3H	3.77	2.7	395	4.0	0.65	17.1	23.3	2.52	0.41	7.6
	4H	5.33	3.0	396	5.6	0.65	24.7	22.9	2.85	0.33	
Drill seeder	3H	3.78	2.4	1019	10.3	1.68	21.1	49.0	2.75	0.45	7.6
	4H	5.34	2.7	1052	15.0	1.74	30.3	49.5	3.18	0.37	

¹Refer to Table 1 for a description of implements, surface conditions, and operating conditions.

²Refer to Table 1 for description of heavy tandem disk harrow-surface condition A.

³Refer to Table 1 for description of light tandem disk harrow-surface condition A.

⁴Refer to Table 1 for description of heavy tandem disk harrow-surface condition B.

⁵Refer to Table 1 for description of light tandem disk harrow-surface condition B.

Maximum and Minimum Air Temperatures and Precipitation for the Milan Experiment Station

APRIL			MAY			JUNE		
Temperature		Precipitation	Temperature		Precipitation	Temperature		Precipitation
Max.	Min.		Max.	Min.		Max.	Min.	
13	60	1.28	78	68		80	68	
23		2.00	78	60		88	60	
25	62		65	52	.95	88	52	
26	70		70	40		88	40	
27	76		78	44		88	44	
28	78	.08	84	52		88	52	
29	78		74	62	.15	88	62	
30	72	3.75	68	50		88	50	
			72	55		88	55	
			84	42		88	42	
			82	52		88	52	
			78	64	1.10	88	64	
			86	61		88	61	
			82	64		88	64	
			68	60		88	60	
			16-17		3.10	88		
			18		3.65	88		
			21		1.20	88		
			23	86		88	86	
			24	78		88	78	
			25	82		88	82	
			26	78		88	78	
			27	81		88	81	
			28	80		88	80	
			29	82		88	82	
			30	74		88	74	
			31	76		88	76	

Daily Maximum and Minimum Air Temperatures and
Precipitation for the Milan Experiment Station
During the Growing Season 1983

JUNE				JULY			
	Temperature		Precipitation		Temperature		Precipitation
	Max.	Min.			Max.	Min.	
1	80	52		1	94	72	
2	86	50		2	97	74	2.00
3	88	66		3	97	73	
4	86	60		4	--	--	
5	90	55		5	90	68	
6	68	52		6	82	60	
7	80	48		7	86	58	
8	84	48		8	94	62	
9	88	50		9	96	70	
10	89	54		10	96	70	
11	90	58		11	103	78	
12	90	58		12	102	74	
13	91	74		13	102	73	
14	90	64		14	101	78	
15	88	66	.7	15	101	74	
16	90	60		16	100	74	
17	90	68		17	96	76	
18	88	68		18	90	72	
19	88	68		19	92	68	
20	92	74		20	102	66	
21	92	70		21	100	78	
22	90	70		22	100	74	
23	88	73	.8	23	101	70	
24	92	68		24	102	74	
25	93	69		25	94	72	
26	93	70	.2	26	90	68	
27	94	75	.78	27	100	69	
28	92	74		28	102	77	
29	88	74	3.00	29	104	75	
30	91	74		30	104	77	
31	98	78		31	98	78	

- 115 -

Daily Maximum and Minimum Air Temperatures and
Precipitation for the Milan Experiment Station
During the Growing Season 1983

AUGUST				SEPTEMBER			
	Temperature		Precipitation		Temperature		Precipitation
	Max.	Min.			Max.	Min.	
1	96	76		1	98	70	
2	94	70		2	97	64	
3	96	68		3	90	71	
4	103	80		4	94	70	
5	92	72		5	94	65	
6	94	64		6	93	64	
7	98	59		7	93	66	
8	97	76		8	88	76	
9	98	74		9	97	72	
10	98	76		10	100	67	
11	100	74		11	98	66	
12	102	71		12	98	66	
13	103	72		13	98	64	
14	104	78		14	90	69	
15	102	78		15	84	62	
16	101	72		16	82	50	
17	103	73		17	86	45	
18	101	74		18	88	66	
19	98	72		19	96	59	
20	100	73		20	92	76	
21	100	72		21	78	55	.4
22	102	78		22	62	38	
23	100	71		23	72	32	
24	104	74		24	68	38	
25	101	74		25	78	32	
26	98	72		26	78	44	
27	100	72		27	76	54	
28	100	73		28	78	49	
29	98	70		29	86	44	
30	96	65		30	88	48	
31	90	71					

Daily Maximum and Minimum Air Temperatures and
Precipitation for the Milan Experiment Station
During the Growing Season 1983

OCTOBER			
	Temperature		Precipitation
	Max.	Min.	
1	84	44	
2	88	40	
3	90	44	
4	--	--	
5	--	--	
6	--	--	
7	--	--	
8	--	--	
9	--	--	
10	84	62	
11	73	64	
12	68	46	
13	62	42	
14	73	34	
15	76	37	
16	82	46	
17	74	64	
18	68	63	
19	76	61	
20	82	69	
21	81	68	
22	69	58	
23	58	56	
24	58	56	
25	58	56	
26	62	40	
27	68	34	
28	72	34	
29	76	42	
30	73	42	
31	76	48	