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Permit and tank mix partners

Trial ID: L0719
Location: Havelock

Study Dir.: Kevin Horky
Investigator: Dr. Mark Bernards

GENERAL TRIAL INFORMATION

Study Director: Kevin Horky **Title:** Research Technician
Affiliation: University of Nebraska Lincoln
Postal Code: 68583
Investigator: Dr. Mark Bernards **Title:** Ext. Weed Specialist
Affiliation: University of Nebraska Lincoln
Postal Code: 68583

TRIAL LOCATION

City: Lincoln
State/Prov.: NE
Postal Code: 68583

Conducted Under GLP (Y/N): N **Conducted Under GEP (Y/N):** N

CROP AND WEED DESCRIPTION

Weed	Code	Common Name	Scientific Name
1.	HELAN	Common sunflower	Helianthus annuus
2.	AMAPA	Amaranth, Palmer	Amaranthus palmeri
3.	ABUTH	Velvetleaf	Abutilon theophrasti
4.	SETVI	Green foxtail	Setaria viridis

Crop 1: ZEAMX CORN, FIELD **Variety:** Dekalb 6019 RR
Planting Date: 1/May/2007 **Planting Method:** planted
Rate: 22000 seeds/acre **Depth:** 1.5 in
Row Spacing: 30 in **Seed Bed:** medium
Soil Temperature: 12 C **Soil Moisture:** good **Emergence Date:** 8/May/2007

SITE AND DESIGN

Plot Width, Unit: 10 FT **Plot Length, Unit:** 30 FT **Reps:** 3
Site Type: field
Tillage Type: conventional **Study Design:** RANDOMIZED COMPLETE BLOCK

MAINTENANCE

Field Prep./Maintenance: Field was disked once, Anhydrous Ammonia was applied at rate of 120 lbs Nitrogen/acre, field was then field cultivated once.

SOIL DESCRIPTION

% Sand: 7 **% OM:** 2.7 **Texture:** Silt loam
% Silt: 69 **pH:** 6.8 **Soil Name:** Sharpesburg
% Clay: 23 **CEC:** 26 **Fert. Level:** good

APPLICATION DESCRIPTION

	A
Application Date:	29/May/2007
Time of Day:	10:30 am
Application Method:	Spray
Application Timing:	epost
Applic. Placement:	BROFOL
Air Temp., Unit:	72 F
% Relative Humidity:	60
Wind Velocity, Unit:	7 mph
Dew Presence (Y/N):	n
Soil Temp., Unit:	12 C
Soil Moisture:	good
% Cloud Cover:	100

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CROP STAGE AT EACH APPLICATION

A	
Crop 1 Code, Stage:	ZEAMX
Stage Scale:	V4
Height, Unit:	12 in

WEED STAGE AT EACH APPLICATION

A	
Weed 1 Code, Stage:	HELAN
Stage Scale:	5 in
Density, Unit:	10 m2
Weed 2 Code, Stage:	AMAPA
Stage Scale:	3 in
Density, Unit:	10 m2
Weed 3 Code, Stage:	ABUTH
Stage Scale:	3 in
Density, Unit:	5 m2
Weed 4 Code, Stage:	SETVI
Stage Scale:	2 in
Density, Unit:	5 m2

APPLICATION EQUIPMENT

A	
Appl. Equipment:	IH cub
Operating Pressure:	30
Nozzle Type:	Turbo Tee
Nozzle Size:	110015
Nozzle Spacing, Unit:	15 in
Nozzles/Row:	2
Boom Length, Unit:	10 ft
Boom Height, Unit:	24 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	15 gpa
Propellant:	air

Trial Comments

Gowan protocol PER-07-16

Data requested

Weed control 14, 28 DAT

Crop Injury 7, 14, 28 DAT

Yield

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Trial ID: L0719

Study Dir.: Kevin Horkey

Location: Havelock

Investigator: Dr. Mark Bernards

					ZEAMX PHYCHL	HELAN ZEAMX CONTROL	AMAPA ZEAMX CONTROL	ABUTH ZEAMX CONTROL	SETVI ZEAMX CONTROL	HELAN ZEAMX CONTROL
					%	%	%	%	%	%
					5/Jun/2007	12/Jun/2007	12/Jun/2007	12/Jun/2007	12/Jun/2007	26/Jun/2007
					7 DA-A	14 DA-A	14 DA-A	14 DA-A	14 DA-A	28 DA-A
# Subsamples, Dec.										
Trt No.	Treatment Name	Rate	Grow Unit	Stg Plot	1	2	3	4	5	6
1	Permit	0.67 oz/a	epost	101	5	99	50	99	30	99
	Aatrex	0.75 lb ai/a	epost	205	5	99	50	95	60	99
	COC	1 % v/v	epost	304	0	99	50	95	30	99
	AMS	2.5 lb/a	epost							
	Mean =				3	99	50	96	40	99
2	Permit	0.67 oz/a	epost	102	2	99	70	95	40	99
	Aatrex	1 lb ai/a	epost	207	5	99	70	95	35	99
	COC	1 % v/v	epost	309	10	99	40	95	40	99
	AMS	2.5 lb/a	epost							
	Mean =				6	99	60	95	38	99
3	Permit	0.67 oz/a	epost	103	0	99	30	95	30	99
	Impact	0.125 oz/a	epost	209	10	99	30	95	35	99
	COC	1 % v/v	epost	310	5	99	40	95	40	99
	AMS	2.5 lb/a	epost							
	Mean =				5	99	33	95	35	99
4	Permit	0.67 oz/a	epost	104	0	99	40	95	40	99
	Impact	0.25 oz/a	epost	210	5	99	30	95	30	99
	COC	1 % v/v	epost	308	10	99	40	95	40	99
	AMS	2.5 lb/a	epost							
	Mean =				5	99	37	95	37	99
5	Permit	0.67 oz/a	epost	105	0	99	30	95	40	99
	Callisto	0.5 oz/a	epost	211	0	90	30	90	60	90
	COC	1 % v/v	epost	303	0	99	50	95	30	99
	AMS	2.5 lb/a	epost							
	Mean =				0	96	37	93	43	96
6	Permit	0.67 oz/a	epost	106	0	99	40	95	30	99
	Callisto	1 oz/a	epost	202	10	99	50	95	30	99
	COC	1 % v/v	epost	312	15	99	50	95	50	99
	AMS	2.5 lb/a	epost							
	Mean =				8	99	47	95	37	99
7	Permit	0.67 oz/a	epost	107	0	99	60	95	35	99
	Laudis	1 oz/a	epost	208	5	99	50	95	30	99
	COC	1 % v/v	epost	302	10	99	60	95	30	99
	AMS	2.5 lb/a	epost							
	Mean =				5	99	57	95	32	99
8	Permit	0.67 oz/a	epost	108	2	99	35	95	30	99
	Sencor	2 oz/a	epost	206	5	99	50	95	35	99
	NIS	0.25 % v/v	epost	311	15	99	40	95	40	99
	AMS	2.5 lb/a	epost							
	Mean =				7	99	42	95	35	99

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Weed Code						ZEAMX	HELAN	AMAPA	ABUTH	SETVI	HELAN
Crop Code						ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX
Rating Data Type						PHYCHL	CONTROL	CONTROL	CONTROL	CONTROL	CONTROL
Rating Unit						%	%	%	%	%	%
Rating Date						5/Jun/2007	12/Jun/2007	12/Jun/2007	12/Jun/2007	12/Jun/2007	26/Jun/2007
Trt-Eval Interval						7 DA-A	14 DA-A	14 DA-A	14 DA-A	14 DA-A	28 DA-A
ARM Action Codes											
# Subsamples, Dec.											
Trt No.	Treatment Name	Rate	Unit	Grow Stg	Plot	1	2	3	4	5	6
9	Yukon	4	oz/a	epost	109	2	99	50	95	35	99
	COC	1	% v/v	epost	204	2	99	60	95	60	99
	AMS	2.5	lb/a	epost	301	0	99	60	95	30	99
	Mean =						1	99	57	95	42
10	Yukon	4	oz/a	epost	110	5	99	70	95	35	99
	Sencor	2	oz/a	epost	212	15	99	90	95	35	99
	NIS	0.25	% v/v	epost	305	10	99	70	95	30	99
	AMS	2.5	lb/a	epost							
Mean =						10	99	77	95	33	99
11	Callisto	3	oz/a	epost	111	10	99	99	99	35	99
	Aatrex	0.33	lb ai/a	epost	203	5	99	95	95	60	99
	COC	1	% v/v	epost	307	10	99	95	95	40	99
	AMS	2.5	lb/a	epost							
Mean =						8	99	96	96	45	99
12	check				112	0	0	0	0	0	0
					201	0	0	0	0	0	0
					306	0	0	0	0	0	0
	Mean =						0	0	0	0	0

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Weed Code						AMAPA	ABUTH	SETVI	ZEAMX	ZEAMX	ZEAMX
Crop Code						ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX
Rating Data Type						CONTROL	CONTROL	CONTROL	YIELD	MOICON	YIELD
Rating Unit						%	%	%	LB	%	bu/ac
Rating Date						26/Jun/2007	26/Jun/2007	26/Jun/2007	24/Oct/2007	24/Oct/2007	24/Oct/2007
Trt-Eval Interval						28 DA-A	28 DA-A	28 DA-A			
ARM Action Codes											TY1
# Subsamples, Dec.											1
Trt No.	Treatment Name	Rate	Unit	Grow Stg	Plot	7	8	9	10	11	12
1	Permit	0.67	oz/a	epost	101	50	99	20	30	15	78.9
	Aatrex	0.75	lb ai/a	epost	205	50	95	50	35	15	91.0
	COC	1	% v/v	epost	304	40	95	20	26	14	68.4
	AMS	2.5	lb/a	epost							
	Mean =					47	96	30	30	15	79.5
2	Permit	0.67	oz/a	epost	102	70	95	30	33	15	86.6
	Aatrex	1	lb ai/a	epost	207	70	95	20	37	14	95.6
	COC	1	% v/v	epost	309	30	95	30	19	15	49.4
	AMS	2.5	lb/a	epost							
	Mean =					57	95	27	30	15	77.2
3	Permit	0.67	oz/a	epost	103	20	95	20	9	14	24.4
	Impact	0.125	oz/a	epost	209	20	95	20	20	15	52.3
	COC	1	% v/v	epost	310	20	95	20	12	15	31.7
	AMS	2.5	lb/a	epost							
	Mean =					20	95	20	14	15	36.1
4	Permit	0.67	oz/a	epost	104	30	95	30	12	15	31.0
	Impact	0.25	oz/a	epost	210	20	95	20	26	14	68.4
	COC	1	% v/v	epost	308	20	95	30	24	15	61.8
	AMS	2.5	lb/a	epost							
	Mean =					23	95	27	21	14	53.8
5	Permit	0.67	oz/a	epost	105	20	95	30	21	15	55.0
	Callisto	0.5	oz/a	epost	211	20	90	30	22	15	57.4
	COC	1	% v/v	epost	303	40	95	20	9	14	22.4
	AMS	2.5	lb/a	epost							
	Mean =					27	93	27	17	14	44.9
6	Permit	0.67	oz/a	epost	106	30	95	30	30	14	78.7
	Callisto	1	oz/a	epost	202	40	95	20	19	15	50.1
	COC	1	% v/v	epost	312	40	95	40	44	15	115.1
	AMS	2.5	lb/a	epost							
	Mean =					37	95	30	31	15	81.3
7	Permit	0.67	oz/a	epost	107	60	95	30	37	15	97.2
	Laudis	1	oz/a	epost	208	30	95	30	31	15	81.9
	COC	1	% v/v	epost	302	50	95	20	24	15	63.0
	AMS	2.5	lb/a	epost							
	Mean =					47	95	27	31	15	80.7
8	Permit	0.67	oz/a	epost	108	30	95	20	30	14	77.6
	Sencor	2	oz/a	epost	206	30	95	20	26	15	67.0
	NIS	0.25	% v/v	epost	311	20	95	20	22	14	58.2
	AMS	2.5	lb/a	epost							
	Mean =					27	95	20	26	14	67.6
9	Yukon	4	oz/a	epost	109	50	95	20	33	14	85.3
	COC	1	% v/v	epost	204	60	95	50	33	14	85.8
	AMS	2.5	lb/a	epost	301	50	95	20	25	15	63.6
	Mean =					53	95	30	30	14	78.2

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Weed Code					AMAPA	ABUTH	SETVI				
Crop Code					ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	
Rating Data Type					CONTROL	CONTROL	CONTROL	YIELD	MOICON	YIELD	
Rating Unit					%	%	%	LB	%	bu/ac	
Rating Date					26/Jun/2007	26/Jun/2007	26/Jun/2007	24/Oct/2007	24/Oct/2007	24/Oct/2007	
Trt-Eval Interval					28 DA-A	28 DA-A	28 DA-A				
ARM Action Codes										TY1	
# Subsamples, Dec.										1	
Trt No.	Treatment Name	Rate	Unit	Grow Stg	Plot	7	8	9	10	11	12
10	Yukon	4	oz/a	epost	110	70	95	20	36	14	93.7
	Sencor	2	oz/a	epost	212	85	95	30	46	15	118.6
	NIS	0.25	% v/v	epost	305	65	95	20	24	14	62.0
	AMS	2.5	lb/a	epost							
				Mean =		73	95	23	35	14	91.4
11	Callisto	3	oz/a	epost	111	99	95	20	41	14	106.6
	Aatrex	0.33	lb ai/a	epost	203	95	95	50	16	15	40.5
	COC	1	% v/v	epost	307	95	95	30	37	13	98.8
	AMS	2.5	lb/a	epost							
				Mean =		96	95	33	31	14	82.0
12	check				112	0	0	0	9	14	24.6
					201	0	0	0	8	15	21.6
					306	0	0	0	6	16	16.0
				Mean =		0	0	0	8	15	20.7

Column 12: TY1 = 2.592857*[10]*(100-[11])/85

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Trial ID: L0719

Study Dir.: Kevin Horkey

Location: Havelock

Investigator: Dr. Mark Bernards

Weed Code		ZEAMX	HELAN	AMAPA	ABUTH	SETVI	HELAN			
Crop Code		PHYCHL	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX			
Rating Data Type		CONTROL	CONTROL	CONTROL	CONTROL	CONTROL	CONTROL			
Rating Unit		%	%	%	%	%	%			
Rating Date		5/Jun/2007	12/Jun/2007	12/Jun/2007	12/Jun/2007	12/Jun/2007	26/Jun/2007			
Trt-Eval Interval		7 DA-A	14 DA-A	14 DA-A	14 DA-A	14 DA-A	28 DA-A			
ARM Action Codes										
# Subsamples, Dec.										
Trt No.	Treatment Name	Rate	Grow Unit	Stg	1	2	3	4	5	6
1	Permit	0.67 oz/a	epost		3 a	99 a	50 cde	96 a	40 a	99 a
	Aatrex	0.75 lb ai/a	epost							
	COC	1 % v/v	epost							
	AMS	2.5 lb/a	epost							
2	Permit	0.67 oz/a	epost		6 a	99 a	60 c	95 a	38 a	99 a
	Aatrex	1 lb ai/a	epost							
	COC	1 % v/v	epost							
	AMS	2.5 lb/a	epost							
3	Permit	0.67 oz/a	epost		5 a	99 a	33 e	95 a	35 a	99 a
	Impact	0.125 oz/a	epost							
	COC	1 % v/v	epost							
	AMS	2.5 lb/a	epost							
4	Permit	0.67 oz/a	epost		5 a	99 a	37 de	95 a	37 a	99 a
	Impact	0.25 oz/a	epost							
	COC	1 % v/v	epost							
	AMS	2.5 lb/a	epost							
5	Permit	0.67 oz/a	epost		0 a	96 a	37 de	93 a	43 a	96 a
	Callisto	0.5 oz/a	epost							
	COC	1 % v/v	epost							
	AMS	2.5 lb/a	epost							
6	Permit	0.67 oz/a	epost		8 a	99 a	47 cde	95 a	37 a	99 a
	Callisto	1 oz/a	epost							
	COC	1 % v/v	epost							
	AMS	2.5 lb/a	epost							
7	Permit	0.67 oz/a	epost		5 a	99 a	57 cd	95 a	32 a	99 a
	Laudis	1 oz/a	epost							
	COC	1 % v/v	epost							
	AMS	2.5 lb/a	epost							
8	Permit	0.67 oz/a	epost		7 a	99 a	42 cde	95 a	35 a	99 a
	Sencor	2 oz/a	epost							
	NIS	0.25 % v/v	epost							
	AMS	2.5 lb/a	epost							
9	Yukon	4 oz/a	epost		1 a	99 a	57 cd	95 a	42 a	99 a
	COC	1 % v/v	epost							
	AMS	2.5 lb/a	epost							
10	Yukon	4 oz/a	epost		10 a	99 a	77 b	95 a	33 a	99 a
	Sencor	2 oz/a	epost							
	NIS	0.25 % v/v	epost							
	AMS	2.5 lb/a	epost							
11	Callisto	3 oz/a	epost		8 a	99 a	96 a	96 a	45 a	99 a
	Aatrex	0.33 lb ai/a	epost							
	COC	1 % v/v	epost							
	AMS	2.5 lb/a	epost							
12	check				0 a	0 b	0 f	0 b	0 b	0 b
LSD (P=.05)					6.5	2.5	14.2	2.0	16.3	2.5
Standard Deviation					3.8	1.5	8.4	1.2	9.6	1.5
CV					77.81	1.66	17.05	1.36	27.76	1.66
Grand Mean					4.94	90.5	49.28	87.17	34.72	90.5
Bartlett's X2					6.4	0.0	8.827	0.134	14.966	0.0
P(Bartlett's X2)					0.699	.	0.453	0.935	0.133	.

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Weed Code		HELAN	AMAPA	ABUTH	SETVI	HELAN
Crop Code	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX
Rating Data Type	PHYCHL	CONTROL	CONTROL	CONTROL	CONTROL	CONTROL
Rating Unit	%	%	%	%	%	%
Rating Date	5/Jun/2007	12/Jun/2007	12/Jun/2007	12/Jun/2007	12/Jun/2007	26/Jun/2007
Trt-Eval Interval	7 DA-A	14 DA-A	14 DA-A	14 DA-A	14 DA-A	28 DA-A
ARM Action Codes						
# Subsamples, Dec.						
Replicate F	5.148	1.000	0.296	2.557	2.003	1.000
Replicate Prob(F)	0.0147	0.3840	0.7470	0.1004	0.1588	0.3840
Treatment F	2.198	1084.000	24.175	1614.162	4.383	1084.000
Treatment Prob(F)	0.0558	0.0001	0.0001	0.0001	0.0016	0.0001

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Weed Code	AMAPA ZEAMX CONTROL	ABUTH ZEAMX CONTROL	SETVI ZEAMX CONTROL	ZEAMX YIELD LB	ZEAMX MOICON %	ZEAMX YIELD bu/ac				
Crop Code										
Rating Data Type										
Rating Unit	%	%	%		%					
Rating Date	26/Jun/2007	26/Jun/2007	26/Jun/2007	24/Oct/2007	24/Oct/2007	24/Oct/2007				
Trt-Eval Interval	28 DA-A	28 DA-A	28 DA-A							
ARM Action Codes						TY1				
# Subsamples, Dec.						1				
Trt No.	Treatment Name	Rate	Unit	Grow Stg	7	8	9	10	11	12
1	Permit	0.67	oz/a	epost	47 cd	96 a	30 a	30 ab	15 a	79.5 ab
	Aatrex	0.75	lb ai/a	epost						
	COC	1	% v/v	epost						
	AMS	2.5	lb/a	epost						
2	Permit	0.67	oz/a	epost	57 bc	95 a	27 a	30 ab	15 a	77.2 ab
	Aatrex	1	lb ai/a	epost						
	COC	1	% v/v	epost						
	AMS	2.5	lb/a	epost						
3	Permit	0.67	oz/a	epost	20 e	95 a	20 a	14 ab	15 a	36.1 ab
	Impact	0.125	oz/a	epost						
	COC	1	% v/v	epost						
	AMS	2.5	lb/a	epost						
4	Permit	0.67	oz/a	epost	23 de	95 a	27 a	21 ab	14 a	53.8 ab
	Impact	0.25	oz/a	epost						
	COC	1	% v/v	epost						
	AMS	2.5	lb/a	epost						
5	Permit	0.67	oz/a	epost	27 de	93 a	27 a	17 ab	14 a	44.9 ab
	Callisto	0.5	oz/a	epost						
	COC	1	% v/v	epost						
	AMS	2.5	lb/a	epost						
6	Permit	0.67	oz/a	epost	37 cde	95 a	30 a	31 ab	15 a	81.3 ab
	Callisto	1	oz/a	epost						
	COC	1	% v/v	epost						
	AMS	2.5	lb/a	epost						
7	Permit	0.67	oz/a	epost	47 cd	95 a	27 a	31 ab	15 a	80.7 ab
	Laudis	1	oz/a	epost						
	COC	1	% v/v	epost						
	AMS	2.5	lb/a	epost						
8	Permit	0.67	oz/a	epost	27 de	95 a	20 a	26 ab	14 a	67.6 ab
	Sencor	2	oz/a	epost						
	NIS	0.25	% v/v	epost						
	AMS	2.5	lb/a	epost						
9	Yukon	4	oz/a	epost	53 bc	95 a	30 a	30 ab	14 a	78.2 ab
	COC	1	% v/v	epost						
	AMS	2.5	lb/a	epost						
10	Yukon	4	oz/a	epost	73 b	95 a	23 a	35 a	14 a	91.4 a
	Sencor	2	oz/a	epost						
	NIS	0.25	% v/v	epost						
	AMS	2.5	lb/a	epost						
11	Callisto	3	oz/a	epost	96 a	95 a	33 a	31 ab	14 a	82.0 ab
	Aatrex	0.33	lb ai/a	epost						
	COC	1	% v/v	epost						
	AMS	2.5	lb/a	epost						
12	check				0 f	0 b	0 b	8 b	15 a	20.7 b
LSD (P=.05)		16.9				1.8	15.9	13.8	0.9	36.20
Standard Deviation		10.0				1.0	9.4	8.2	0.5	21.38
CV		23.66				1.2	38.29	32.18	3.62	32.33
Grand Mean		42.19				87.06	24.44	25.34	14.49	66.13
Bartlett's X2		12.647				0.097	7.574	10.086	14.081	9.964
P(Bartlett's X2)		0.179				0.756	0.476	0.523	0.229	0.534
Replicate F		0.845				1.557	1.553	0.951	0.728	0.946
Replicate Prob(F)		0.4431				0.2331	0.2339	0.4016	0.4941	0.4034
Treatment F		20.296				2072.845	2.582	3.213	0.399	3.190
Treatment Prob(F)		0.0001				0.0001	0.0280	0.0095	0.9416	0.0099

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Weed Code	AMAPA	ABUTH	SETVI			
Crop Code	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX
Rating Data Type	CONTROL	CONTROL	CONTROL	YIELD	MOICON	YIELD
Rating Unit	%	%	%	LB	%	bu/ac
Rating Date	26/Jun/2007	26/Jun/2007	26/Jun/2007	24/Oct/2007	24/Oct/2007	24/Oct/2007
Trt-Eval Interval	28 DA-A	28 DA-A	28 DA-A			
ARM Action Codes						TY1
# Subsamples, Dec.						1

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Column 12: TY1 = $2.592857 \cdot [10] \cdot (100 - [11]) / 85$