

Appendix I. 2005 Agronomic Calendar for WICST (Fld 440)

ARLINGTON RESEARCH STATION

Corn rotations					
CROP-2005 Rotation Treatment #	CORN CS1 + prairie 1	CORN CS2 3	CORN CS3 6	CORN CS4 7	CORN CS5 12
Plot #'s	109,204,306,412, 501,504,508	101,214,303,401	102,212,313,407	111,209,305,409	103,213,314,410
Primary Tillage	Chisel plow 11-16-04	None	Chisel plow w- sweeps 11-16-04	Chisel plow 11-16-04	Chisel plow w- sweeps 11-16-04
Secondary Tillage	Field cultivator 2x 4-28-05	None	Field cultivate 2x 4-28-05	Field cultivator 2x 4-28-05	Field cultivate 2x 4-28-05
Variety Planting Date Rate	Growmk FS4453 4-29-05 32,000 seeds/a (has Poncho 250 seed trt)	Growmk FS4453 4-29-05 32,000 seeds/a (has Poncho 250 seed trt)	NC+ 42A32 5-18-05 34,500 seeds/a	Growmk FS4453 4-29-05 32,000 seeds/a (has Poncho 250 seed trt)	NC+ 42A32 5-18-05 34,500 seeds/a
Starter Fertilizer	100 lb 5-14-42	100 lb 5-14-42	None	100 lb 5-14-42	None
Fertilizer	120 lb N/a (28%) based on PSNT	113 lb N/a (28%) based on PSNT	102 & 313 = 200 lb/a K ₂ SO ₄ 5-3-05	None	213 & 410 = 200 lb/a & 103 & 314 =400 lb/a K ₂ SO ₄ on 5-3-05
Manure	None	None	None	20 ton-a 11-16-04	15 ton-a 11-16-04
Pesticides- Herbicides	<u>Pre-emerge:</u> Force 3G (4.4 lb/a) 5-5-05 Dual II Magnum (1.5 pt/a) <u>Post-emerge:</u> 6-8-05 Buctril (1.14 pt/a)	Prozap zinc phosp. in furrow (6 lb/a); <u>Pre-emerge</u> 5-5-05: Roundup WMax (13 oz/a) burndown; Dual II Magnum (1.3 pt/a) + AMS; <u>Post-emerge:</u> 6-8-05 Buctril (1.14 pt/a) 6-17-05 Distinct (4.0 oz/a) +AMS, NIS	None	<u>Pre-emerge:</u> 5-5-05 Dual II Magnum (1.5 pt/a) <u>Post-emerge:</u> 6-8-05 Buctril (1.14 pt/a)	None
Rotary Hoe-tine weed	None	None	RH: 5-10, 5-18, 5-24 TW: 6-2, 6-8 2x	None	RH: 5-10, 5-18, 5-24 TW: 6-2, 6-8 2x
Cultivation	None	None	6-14, 6-24 (2x)	None	6-14, 6-24 (2x)
Harvest & Yield	10-19-05 197.3 bu/a	10-19-05 210.2 bu/a	10-19-05 102.2 bu/a	10-19-05 231.4 bu/a	10-19-05 128.3 bu/a
Fall Practices	Chop stalks Chisel plow with twisted shank 11-14-05	11-14-05 100 lb/a 0-0-60 on 101 & 401	Chop stalks Moldboard plow 11-15-05	Chop stalks Manure 9000 gal-a 11-10-05, Chisel plow with twisted shank 11-14-05	Chop stalks Manure 9000 gal-a 11-10-05, Moldboard plow 11-15-05
Crop 2006	Corn	Soybean	Soybean	D.S. Alfalfa	Oats-Alfalfa

Appendix I (cont'd). 2005 Agronomic Calendar for WICST (Fld 440)

Soybean and Wheat Rotations			
CROP-2005 Rotation Treatment #	NR Soybean CS2 2	WR Soybean-Wheat CS3 5	Wheat-Red Clover CS3 4
Plot #'s	108, 206, 310, 408	106, 202, 307, 411	104, 201, 301, 402
Primary Tillage	None	Chisel plow 11-16-04	Field cultivator 1x 10-6-04
Secondary Tillage	None	Field cultivator (2x) April 28 then rotary hoe 5-10 and 5-18	None
Planting Date	5-10-05	SB: 5-18-05 WW: 10-4-05	WW: 10-6-04 Red clover: 4-9-05 with NT drill Berseem clover-oats: 8-17-05, NT drill
Variety Rate	'Cropland RT 2089' 225,000 seeds/a (2675 sd/lb)	Sb: 'IA 1008' (food grade) 170,000 seeds/a (2550 sd/lb) WW: 150 lb/a ('Arapahoe' Hard Red)	'Patriot' Hard Red: 180 lb/a 'Arlington' red clover: 12 lb/a Berseem-oats: 10 and 140 lb/a
Fertilizer	None	None	None
Pesticides- Herbicides	<u>Post-emerg:</u> 5-16-05 Roundup-WMax (13 oz/a); Synchrony (0.25 oz/a) + AMS & Crop oil; 6-17-05 Roundup-Wmax (22 oz/a); Pursuit DG (0.72 oz/a) + Speedway; 7-29-05 Warrior (2.5 oz/a); Lorsban 4E (12 oz/a)	None	None
Rotary Hoe- tine weed	None	RH: 5-24 TW: 6-2 (2x), 6-8 (2x)	None
Cultivation	None	6-14-05	None
Harvest & Yield	10-4-05 59.0 bu/a	10-4-05 24.6 bu/a	Wheat: 7-13-05 49.8 bu/a Straw: 7-15-05 0.65 ton dm-a
Fall Practices	None	Field cultivator 1x to prep for wheat planting Planted wheat 10-5-05	After wheat harvest, dug quack with field cultivator (2x each date) on 7-28, 8-1, 8-17. Planted berseem-oats 8-17-05 No fall tillage-spring chisel
Crop 2006	Corn	Wheat - Red Clover	Corn

Appendix I (cont'd). 2005 Agronomic Calendar for WICST (Fld 440)

Forage rotations						
CROP-2005 Rotation Treatment #	D.S. Alfalfa CS4 10	Estab. Alfalfa I CS4 9	Estab. Alfalfa II CS4 8	Oats-Alfalfa CS5 11	Estab. Alfalfa I CS5 13	Pasture CS6 14
Plot #'s	107, 205, 309,404	105, 203, 308,406	113, 210, 311,414	110, 208, 304,413	114, 211, 312, 403	112, 207, 302, 405
Primary Tillage	Chisel plow 11-16-04	None	None	Chisel plow 11-16-04	None	None
Secondary Tillage	Soil Finisher 2x 4-14-05	None	None	Soil Finisher 2x 4-14-05	None	None
Variety Planting Date	'Magnum V' 4-14-05	-	-	'Magnum V' alf, 'Forage +' oats, trapper peas 4-14-05	-	'Arlington' Red clover & annual ryegr fenceline* 4-9-05
Rate	12 lb/a			Alf - 12 lb/a oats 50 lb/a Peas - 50 lb/a		12 lb/a
Fertilizer	None	6-6-05 200 lb/a 0-0-50	6-6-05 200-400 lb/a 0-0-50	6-6-05 (110, 413) 400 lb/a 0-0-50	6-6-05 (not 211) 360 lb/a 0-0-50	None
Manure	20 ton-a 11-11-04	None	None	15 ton-a 11-11-04	None	Grazing to Nov 1st
Pesticides- Herbicides	Herbicide <u>Post-emerge:</u> 6-10-05 Raptor (4 oz/a) + NIS & AMS Insecticide 6-10-05 Warrior (2.25 oz.a)	Insecticide 7-14-05 Warrior 2.56 oz/a	Insecticide 7-14-05 Warrior (2.56 oz/a) Herbicide 10-29-05 2,4-D (16oz/a); Express XP (0.125 oz/a); Glystar Plus (39 oz/a), Citron + NIS	None	None	Spot sprayed thistles (stinger 0.25 fl oz-gal water)
Harvest & Yield (Ton DM-a)	7-8-05= 0.28 8-17-05=1.36 Total = 1.64	6-2-05= 1.59 7-8-05= 1.42 8-17-05=1.07 10-18-05=0.55 total = 4.63	6-2-05 = 1.03 7-8-05 = 0.75 8-17-05 =0.90 10-18-05=0.42 total = 3.11	<u>Oatlage:</u> 7-12-05 =3.02 total = 3.02	6-2-05 = 1.65 7-8-05 = 0.85 8-17-05 =0.93 10-18-05=0.45 total = 3.88	5-23-05 =0.96 6-28-05 =0.54 8-19-05 =1.11 total = 2.61
Fall Practices	None	None	Manured 6000 gal-a 11-10-05, Chisel plow with twisted shank 11-14-05	Seeding failed; Dug quack 2x on 7-28,8-1,8-17. Reseeded untrt WL346 LHR 8-17	Manured 6000 gal-a 11-10-05, Moldboard plow 11-15-05	Clipped
Crop 2006	Alf I	Alf II	Corn	Alf I	Corn	Pasture

*seed ryegrass @ 15 lb/a along fenceline where water cup-tub is located. Just one pass (5' width) with drill.

Appendix I (cont'd). 2005 Agronomic Calendar for WICST (Fld 440), cont'd

Satellite – Chemlite plots			
CROP-2005 Rotation Treatment #	Corn (cs3 w-chemical inputs)	WR Soybean-Wheat (cs3 w-chemical inputs)	Wheat-Red Clover (cs3 w-chemical inputs)
Plot #'s	SAT B, F	SAT A, E	SAT C, D
Primary Tillage	Chisel plow w-sweeps 11-16-04	Chisel plow 11-16-04	Field cultivator 1x 10-6-04
Secondary Tillage	Field cultivator 2x 4-28-05	Field cultivator 2x 4-28-05	None
Planting Date	5-3-05	SB: 5-18-05 WW: 10-5-05	WW: 10-7-04 Red clover: 4-9-05 Berseem clover: 8-5-05 (used no-till drill)
Variety Rate	Growmk FS4453 32,000 seeds/a (has Poncho 250 seed trt)	SB: Dairyland DSR-184-RR 170,000 seeds/a (3075 sd/lb) WW: Pioneer 25R47 180 lb/a	Pioneer 25R37: 180 lb/a Arlington red clover: 12 lb/a Berseem clover: 10 lb/a
Fertilizer	100 lb starter (5-14-42) 80 lbs N-a (28% sidedress)	None	4-11-05 110 lb N-a
Pesticides- Herbicides	Full rate banded over row Pre emrg -1 pass: 5-12-05 Camix (callisto+Dual) (1.2 qt/a); Princep (0.5 pt/a)	Broadcast at half rate <u>Post emrg:</u> 7-15-05 Roundup Wmax (22 oz/a) + Speedway; 7-29-05 Warrior (2.5 oz/a); Lorsban 4E (12 oz/a); 9-6-05 Poast Plus (24 oz/a) + Crop oil & AMS	None
Rotary Hoe	None	5-10-05	None
Cultivation	6-9-05, 6-14-05	6-9-05, 6-14-05, 6-22-05	None
Harvest & Yield	10-19-05 201.5 bu/a	10-4-05 54.4 bu/a	Wheat: 7-14-05 79.3 bu/a Straw: 7-15-05 1.18 T dm-a
Fall Practices	Chop stalks Chisel plow with twisted shank 11-14-05	Field cultivator Planted wheat 10-5-05	After wheat harvest, plowed up red clover (by mistake); FC 2x on 7-28, 8-3 and replanted berseem 8-5; no fall tillage
Crop 2006	WR Soybeans	Wheat - Red Clover	Corn

Appendix II. 2005 Agronomic Calendar on the Organic Grain Plots (Arl 403)

Crop 2005	ALFALFA/ ORCHARDGRASS	WINTER WHEAT & OATS	CORN	SOYBEANS
Strip #	1	2	3	4
Plot	A, B	C (wheat), D (oats)	E, F	G, H
STK '04 (ppm)	98, 100	78, 104	107, 129	108, 125
Primary Tillage	NONE	C: disked 10-11-04 D: field cultv 4-14-05	Chiseled w/sweeps, then planted oat cover crop 9-22-04	Chisel plow w/sweeps 12-1-04
Secondary Tillage	NONE	C: Cultimulcher 10-12-04	Field digger 2x 5-2-05, rotary hoe: 5-10, 5-18	Field digger 2x, 5-2-05 Rotary hoe: 5-10, 5-18
Variety Plant Date Rate	8-18-04 8 lb/a 'Hardy' alf, 4 lb/a 'Potomoc' grass	'Patriot' HR winter wheat in plot C (IH drill) 10-16-04 at 180 lb/a; 'Esquer' oats plot D at 96 lb/a on 4-15-05	NC+ 42A32 5-18-05 34,500 sd/a 1.5" deep	Sb: IA 1008 (food grade) 5-18-05 175,000 sd/a 1.25" deep
Manure	NONE	NONE	NONE	NONE
Rotary Hoe/ Tine Weed	NONE	NONE	RH: 5-24-05; TW: 6-2-05, 6-5-05	RH: 5-24-05; TW: 6-2-05, 6-5-05
Cultivation	NONE	NONE	6-9-05, 6-20-05, 6-27-05	6-9-05, 6-20-05, 6-27-05
Handweed/ scout	Note: Shepherd's purse prevalent last fall in new alf/grass seeding; winterkill on south end of plot B -- reseeded	NONE; vol. winter rye throughout plot	6-23-05 to 7-13-05: 14.5 man hrs/a	6-23-05 to 7-15-05: 75 man hr/a (30 hrs on 6-29 alone)
Plant Popln.	N/a	D: 100,800 plants/acre	F: 27,167 plants/acre	H: 116,200 plant/acre
Harvest	6-02-05: 1.64 t dm/a 7-08-05: 0.92 t dm/a 8-25-05: 0.93 t dm/a	D: 7-27-05: 112 bu/a (after cleanout); 74 bu/a (wheat var trial mean) 0.75 t dm/a oat straw	11-3-05: 181.5 bu/a	10-4-05: 64.1 bu/a
Market	RFV = 147-185; Protein: 19-22% \$140/ton	Food-grade wheat: \$4.50/bu; 62 lb/bu; Oats: 4% cleanout; protein: 14.5%, TW=32.5 lb/bu	Feed-grade Protein: 9.5% \$5/bu	Feed-grade Protein: 40%; 6% splits, 3% smalls (Delong). \$12/bu
Fall Soil test 0-6" on 11-3-05 STP STK	73, 50 74, 70	64, 87 71, 69	61, 64 78, 61	70, 117 83, 131
Fall Practices	None: Chisel w/sweeps in spring '06	Field digger 2x; Plant 'Viking 357' alfalfa/'Calibra' per. ryegrass mix 8-17-05	None: Chisel in spring '06	Plant 'Arapahoe' HR winter wheat 10-5-05 @ 140 lb/a
Crop 2006	CORN	ALFALFA/ PER. RYEGRASS	SOYBEANS	WINTER WHEAT

Alleys seeded to winter rye in September '05 with no-till drill

Appendix III. 2005 Agronomic Calendar on the Organic Grain Production Plots (MFAI)

CROP-2005	CORN	ALFALFA/ ORCHARDGRASS	SOYBEANS	WINTER WHEAT or OATS
Strip #	1	2	3	4
Plot	A, B*	C,D	E*, F	G, H*
STK '04 (ppm)	176, 114	153, 123	87, 77	50, 60
Primary Tillage	JD 726 Mulch finisher (2 passes) 4-26-05	Chisel plow 9-2-04	JD 726 Mulch finisher (2 passes) 5-5-05	JD 726 Mulch finisher 10-13-04
Secondary Tillage	Mulch finisher 5-16-05	Field cultivator 9-7-04 Cultipacker 9-8-04	Mulch finisher 5-23-05	Mulch finisher 2 nd pass 10-14-04
Variety Plant Date Rate	NC+48F37 5-16-05 31,000 seeds/a	'Hardy' Alf, 'Elsie' Og 9-8-04 15lbs/a alf & 4lbs OG no-till drilled same mix on 4-3-05	Vinton 81 5-23-05 170,000 seeds/a	HRW Patriot Wheat 10-14-04
Manure Rate & Date	18 ton/a 4-26-05	16 ton/a 9-2-04	None	None
Rotary Hoe/ Tine weed	RH 5-23-05 RH 5-27-05 TW 6-8-05	None	RH 5-27-05 RH 6-2-05 TW 6-8-05	None
Cultivation	6-14-05	None	6-14-05	None
Handweed/ Scout – man-hr/a	None	None	Yes Aprox. 2hr/a	None
Plant popln.	19,750	N/a	256,400	N/a
Harvest date & yield	10-28-05 158 bu/a at 18% moisture	5-27-05 6-30-05 8-12-05 10-24-05	10-4-05 28 bu/a	7-18-05 62 bu/a
Market	\$5.25/bu field harvest (uncleaned) at 18% moisture	went to neighboring dairy	\$14/bu field harvest (uncleaned)	\$8/bu cleaned and bagged and delivered; 13-14% moisture
Soil test 0-6” on 11-18-05 PH: STP STK	6.4, 6.1 120, 107 196, 173	5.8, 5.7 81, 61 83, 103	5.7, 6.0 38, 59 88, 96	6.4, 6.1 47, 40 83, 83
Fall Practices	Chisel plowed 11-2-05	Undercut with chisel plow with sweeps on 11-23-05	JD 726 Mulch finisher (2 passes) and planted to Winter Rye on 10- 24-05	Spread manure- 14t/a - 8-12-05, JD 726 Mulch finisher, planted 'Viking 357' alfalfa/'Calibra' per. ryegrass (12&4lbs) 8-15-05
Crop 2006	SOYBEANS	CORN	WINTER RYE	ALFALFA/ PER. RYEGRASS

* variety trials in B, E, H