

**PROJECT SUMMARY, January 2009
(Funded Proposal)**

Title: Early Season Pigweed Control in Conservation Tillage Cotton.

Investigators: Dale Monks (Cotton Extension Specialist, Auburn University), Andrew Price (Weed Scientist, USDA-ARS), Kip Balkcom (Agronomist, USDA-ARS), and Mike Patterson (Extension Weed Scientist, Auburn University).

Progress to date: To evaluate pigweed (*Amaranthus* spp.) dynamics in conventional vs. conservation systems, a rye (*Secale cereale* L.) winter cover crop was established at the E.V. Smith Research and Extension Center located near Shorter, AL in the fall of 2006 and at the Tennessee Valley Research and Extension Center near Bella Mina, AL. Horizontal strips consisted of four conservation-tillage treatments: high, medium, and low amounts of cereal rye plus a winter fallow treatment, as well as a conventional tillage treatment that was left fallow prior to tillage. Additionally, vertical strips consisted of four herbicide regimes: 1) S-metolachlor at 1.12 kg/ha applied broadcast preemergence (PRE) application followed by (fb) glyphosate at 1.12 kg ae/ha applied postemergence (POST) fb a LAYBY application of diuron at 1.12 kg ai/ha plus MSMA at 2.24 kg ai/ha plus 0.25% (v/v) NIS, 2) S-metolachlor at 1.12 kg/ha applied banded PRE fb glyphosate at 1.12 kg/ha POST fb a LAYBY application of diuron at 1.12 kg /ha plus MSMA at 2.24 kg/ha plus 0.25% (v/v) NIS, 3) glyphosate applied at 1.12 kg/ha POST fb a LAYBY application of diuron at 1.12 kg/ha plus MSMA at 2.24 kg/ha plus 0.25% (v/v) NIS, and 4) a non-treated control. Cotton was then established after within-row sub-soiling at E.V. Smith and no-till at Tennessee Valley. Similar to 2007 at both locations, the highest rye biomass was attained following the earliest planting date and the lowest rye biomass was attained following the latest planting date. Also similar to 2007 at both locations, the highest pigweed density was attained following the winter fallow conservation-tillage treatment; the second highest densities were attained following the conventional-tillage and third planting date conservation-tillage treatments; pigweed density decreased as winter cover residue increased.

DATE	MAX	TMAX	MIN	AVG	DFN	TMIN	AAT	RHX	TRHX	RHN	TRHN	SMX	TSMX	SMN	SAV	TSMN	CHI	WET	PREC	HGU	THGU
06/01/2006	94	1444	69	82	M	241	81	89	237	36	231	96	1518	86	91	702	0	24	0.00	12	1134
06/02/2006	92	1407	72	82	M	505	81	91	448	38	1358	97	1517	87	92	700	0	24	0.00	15	1222
06/03/2006	90	1201	65	78	M	422	72	100	443	55	1202	92	1310	82	87	621	0	23	0.15	18	1307
06/04/2006	85	1534	59	72	M	444	72	99	700	42	19	91	1531	80	86	626	0	3	0.00	17	1501
06/05/2006	88	1456	62	75	M	501	73	100	459	36	1451	92	1614	81	87	704	0	11	0.20	18	1727
06/06/2006	85	1511	59	72	M	155	73	100	205	35	119	90	1528	79	85	631	0	0	0.00	16	1244
06/07/2006	85	1513	57	71	M	451	71	95	150	27	1331	91	1559	79	85	700	0	2	0.00	13	746
06/08/2006	89	1530	61	75	M	445	74	94	38	29	54	92	1607	80	86	701	0	0	0.00	14	1316
06/09/2006	92	1514	61	77	M	455	79	89	400	33	401	92	1610	82	87	700	0	1	0.00	15	1600
06/10/2006	91	1528	63	77	M	434	78	95	504	29	1613	94	1550	83	89	700	0	1	0.00	16	1312
06/11/2006	95	1513	66	81	M	453	82	100	320	31	250	96	1548	84	90	701	0	0	0.00	11	1349
06/12/2006	95	1524	70	83	M	427	83	98	458	32	1431	97	1558	86	92	701	0	2	0.00	17	1212
06/13/2006	94	1448	70	82	M	429	78	100	2113	37	1503	96	1529	86	91	632	0	11	0.08	24	1522
06/14/2006	84	1553	67	76	M	418	76	98	224	71	220	89	1634	83	86	616	0	1	0.02	14	1712
06/15/2006	91	1428	68	80	M	454	80	91	449	42	1549	94	1512	83	89	706	0	0	0.00	11	1041
06/16/2006	94	1553	71	83	M	2328	82	79	2326	32	126	97	1558	85	91	703	0	0	0.00	12	1450
06/17/2006	96	1432	74	85	M	505	83	92	131	31	1326	98	1524	86	92	700	0	0	0.00	14	1812
06/18/2006	91	1339	68	80	M	412	80	81	255	36	449	97	1538	87	92	629	0	0	0.00	15	1343
06/19/2006	91	1559	68	80	M	422	79	100	354	34	405	97	1600	87	92	700	0	0	0.00	14	1201
06/20/2006	91	1650	69	80	M	420	81	97	439	40	1115	95	1541	88	92	637	0	1	0.00	11	1102
06/21/2006	96	1559	70	83	M	502	84	95	415	35	1558	97	1642	88	93	702	0	1	0.00	9	1150
06/22/2006	99	1420	71	85	M	419	85	91	424	34	1457	101	1552	88	95	706	0	0	0.00	14	1420
06/23/2006	99	1245	70	85	M	431	83	100	434	32	1240	99	1331	89	94	642	0	11	0.06	23	1941
06/24/2006	98	1535	70	84	M	353	81	98	23	35	1601	99	1451	88	94	634	0	10	0.01	16	1729
06/25/2006	94	1611	70	82	M	503	78	100	220	40	1605	96	1335	87	92	625	0	13	0.11	20	1703
06/26/2006	94	1524	69	82	M	510	77	100	407	37	1507	97	1559	86	92	619	0	13	0.14	20	1653
06/27/2006	92	1540	68	80	M	439	79	99	702	37	1425	96	1512	86	91	700	0	3	0.00	14	1929
06/28/2006	91	1450	67	79	M	504	80	100	439	39	459	95	1630	86	91	638	0	0	0.00	11	1145
06/29/2006	92	1415	61	77	M	453	79	95	350	31	146	96	1528	85	91	642	0	0	0.00	15	1259
06/30/2006	95	1444	64	80	M	439	80	91	410	23	130	98	1550	85	92	700	0	0	0.00	16	1401

AIR TEMPERATURES:

Avg Maximum= 92.1 Avg Minimum= 66.6 Average= 79.4
Highest= 99 Lowest= 57

4in SOIL TEMPERATURES:

Avg Maximum= 95.2 Avg Minimum= 84.7 Average= 90.0
Highest=101 Lowest= 79

PRECIPITATION STATISTICS:

Total= 0.77 Greatest Daily= 0.20 Rain Days= 8
Days with precip greater than or equal to: 0.10= 4 0.25= 0
Daily precipitation amount of Trce is less than 0.01 inch.