

This paper provides a brief overview of the issues surrounding the future crop insurance availability for continuously planted, dryland, summer crops in Western Kansas and Nebraska, and Eastern Colorado (primarily corn, grain sorghum and sunflowers).

Background

There are many different dryland crop rotations in Western Kansas, ranging from wheat-fallow (WF), to wheat-summer crop-fallow (WSF), utilizing any of several spring planted crops such as corn, grain sorghum, sunflowers, cotton or millet, to more intense rotations such as wheat-summer crop-summer crop-fallow (three crops in four years), or even rotations with four crops in five years. The primary determinants for success of these more intense rotations are precipitation and available soil moisture at planting, which is largely impacted by precipitation, soil type, residue management, tillage and weed control.

Because the more intense rotations use more soil water, yields are often less for the second (and third), spring planted, summer crop(s). For example, Alan Schlegel, KSU Tribune Branch Experiment Station, estimates that the second summer crop will on average, yield about 70% of what the previous summer crop yielded (similar to what they see in continuous wheat (73%) in that part of the state). Couple this with the fact that over the last decade, parts of Western Kansas and Nebraska, and Eastern Colorado have all had periods of mild to severe drought, the resulting reductions in crop yields are a growing concern, especially with the more intense rotations.

Table 1. Dryland Crop Rotations with Wheat and Grain Sorghum
(Kansas State University - Tribune Schlegel, Dumler and Thompson)

	- Sorghum Yields -		----- Wheat Yields -----			Oct-Aug Precipitation
	wSsf	wsSf	Wwsf	wWsf	WW	
1996	58	35				17.82
1997	88	45	55	48	43	17.54
1998	117	100	64	63	60	19.72
1999	99	74	80	41	43	20.98
2000	63	23	35	18	18	11.25
2001	68	66	29	27	34	17.55
2002	0	0	0	0	0	5.46
2003	60	41	27	66	30	18.48
2004	91	79	6	1	1	21.49
2005	81	69	40	41	44	17.69
2006	55	13	26	7	2	14.95
Average	71	50	36	31	28	16.63
Stdev	31	31	25	24	21	4.65
1971-2000						17.44

Note: Year to year yield variability of first versus the second/continuous summer crops, as measured by Standard Deviation (Stdev) are similar, likely because annual precipitation is the most significant factor affecting yields.

Western Kansas Dryland Cropping Patterns

It is difficult to ascertain what the “typical” cropping pattern is in Western Kansas because the success/failure of the previous crop and the timing of subsequent rainfall will often alter farmers’ actual plantings, relative to their intended rotation. For example, extremely dry conditions or a

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spring freeze can destroy a wheat crop but if available soil moisture is present later, a summer crop may be planted and harvested in that year. The table below examines crop acreage in the western three crop reporting districts in Kansas. During the period 1999-2008, farmers on average harvested 2,388,800 acres of wheat that had been planted into fallow acres, along with 522,700 acres of continuously cropped wheat. Over that same time frame, farmers harvested an average of 1,556,569 acres of summer crops. The fourth column represents an estimate of the number of acres in any given year committed to a wheat-summer crop-fallow rotation and the fifth column is an estimate of the fallow wheat acres that are not committed to a WSF rotation and therefore are assumed to be in the more conservative wheat-fallow rotation.

In 1996, summer cropped acreage increased significantly due to record grain sorghum plantings following severe spring freeze damage to that year's wheat crop, declining somewhat the next year. It is believed that it was then that the more intensive rotations (mainly WSF) became more of the norm in Western Kansas. 2001, 2004 and 2007 also saw relatively large year over year increases in summer crop acreage, and the relatively higher levels of summer cropped acreage seen in both 2007 and 2008, possibly indicate a trend towards expansion of the WSF rotation and broader utilization of even more intensive rotations.

Lastly, it should be noted that it is impossible to infer from the acreage data in Table 2 exactly how many farmers or acres are committed to any specific rotation, whether that be WF, WSF, or continuously cropped wheat or summer crop. Only estimates can be made from this data.

Table 2. Western Kansas Dryland Cropping Data (Source: KASS)

	Fallow Wheat Harvested	Continuous Wheat Harvested	Summer Crops*	Estimated Ac. in a WSF Rotation**	Estimated Wheat Acres in a WF Rotation***
1993	3,555,000	393,000	708,700	2,126,100	2,846,300
1994	3,364,500	435,000	811,800	2,435,400	2,552,700
1995	3,238,000	438,000	864,500	2,593,500	2,373,500
1996	1,959,000	268,000	1,753,200	5,259,600	205,800
1997	3,194,000	504,000	1,181,500	3,544,500	2,012,500
1998	2,956,000	452,000	1,442,100	4,326,300	1,513,900
1999	2,629,000	443,000	1,652,800	4,958,400	976,200
2000	2,635,000	575,000	1,565,200	4,695,600	1,069,800
2001	2,144,000	418,000	2,102,500	6,307,500	41,500
2002	2,107,000	336,000	1,004,000	3,012,000	1,103,000
2003	2,889,000	702,000	1,017,700	3,053,100	1,871,300
2004	1,903,000	314,000	1,441,400	4,324,200	461,600
2005	2,804,000	606,000	1,527,000	4,581,000	1,277,000
2006	2,339,000	419,000	1,467,200	4,401,600	871,800
2007	2,428,000	781,000	1,928,300	5,784,900	499,700
2008	2,010,000	633,000	1,859,586	5,578,758	150,414
99/08 Avg	2,388,800	522,700	1,556,569	4,669,706	832,231

* The sum of dryland Grain Sorghum, Corn, Soybeans and ALL sunflower acres

** Harvested Summer Crop Acreage x 3

*** Harvested Fallow Wheat Acres less Summer Crops

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Another source of information regarding Western Kansas cropping rotations is a 1997 survey conducted by KSU Research and Extension personnel. Approximately 500 surveys were mailed and 112 returned. The survey results indicated that 31% of farmers used a WF rotation, 66% used a WSF rotation and that only 3% of respondents used a more intensive crop rotation that would possibly involve continuous, summer crops.

What is the Issue?

Specifically, crop insurance companies and the Risk Management Agency (RMA) are concerned with high, loss cost ratios in many dryland, summer crops in Western Kansas. Loss cost ratio (LCR), also known as pure premium rate is the ratio of indemnities to liability (dollars of coverage). For example, from 1999-2008, Greeley County (where the Tribune Branch Experiment Station is located) had an average grain sorghum LCR of .47, meaning that for every dollar of crop insurance coverage, 47 cents were paid out in indemnities. To put that in perspective, producer premiums in Greeley County will approximately run in the area of 19 cents for every dollar of insurance coverage¹, implying that every 19 cents invested by a producer in the form of premiums pays back 47 cents in the form of crop insurance indemnities; arguably less than actuarially sound.

Table 3. 1999-2008 Average LCR's for Four Crops in Several Key Western Kansas Counties

	Corn	Grain Sorghum	Soybeans	Sunflowers
Cheyenne	.49	.60	.55	.36
Rawlins	.35	.35	.43	.29
Sherman	.53	.58	.78	.34
Thomas	.38	.41	.39	.30
Wallace	.38	.48	.93	.30
Logan	.25	.29	.48	.24
Greeley	.46	.47	.68	.14
Wichita	.34	.25		.13
Scott	.39	.25	.41	.26
Hamilton	.45	.40		.22
Kearney	.34	.26		.15
Finney	.33	.20		.18
Stanton	.36	.43		.82
Grant	.47	.39		.25
Haskell	.43	.33		.37
Morton	.37	.47		.56
Stevens	.43	.32		.27
Seward	.51	.23		.38

Note: The highest LCR's, (greater than .35) are in **bold**.

While no changes in crop insurance provisions will be made for crop year 2010, RMA is soliciting input for possible solutions that could be implemented for the 2011 crop year. Proposed changes to 2011 RMA policies must be submitted by the Topeka Regional RMA Office to USDA-RMA by April of 2010; so the regional office's goal is to initiate a discussion now so that they can submit any proposed changes by next spring.

¹ RMA web-based premium calculator; 2010 crop year, 43 bushel APH, \$3.81 price, 75% coverage level and optional units.

Internally, our Kansas Farm Bureau goal is to compile any comments, input or proposed solutions by March 8, 2010, so that there is adequate time for us to submit them to RMA.

Proposing Solutions

Again, the concern is with high loss cost ratios, which are to an extent, addressed individually by lower APH's and higher individual premiums. The Risk Management Agency is concerned though, that premium rates will need to increase given the high LCR's and that escalating rates and lower coverage will cause adverse selection, ruining the safety net for all non-irrigated coverage. RMA believes that "most research indicates there is not enough precipitation to support a continuous high water usage summer crop rotation in eastern Colorado, western Kansas and western Nebraska." In addition, prolonged, high county level losses run the risk of impacting the premiums for all producers in those counties, even those that don't have high loss ratios or only implement the more conservative wheat-spring crop-fallow rotation. **The Risk Management Agency would like to see industry provide suggestions on how to remedy the situation and keep overall premiums more manageable.**

A possible solution that RMA is considering is to not provide crop insurance coverage for summer crops following another summer crop in certain counties where rainfall is perceived as limited (likely the 18 counties listed in Table 3). Thus in a wheat-corn-grain sorghum-fallow rotation, insurance would be available for the corn but not the grain sorghum. This alternative would be accomplished in Kansas by incorporating the following language into the Special Provisions of Insurance in selected counties. *"Insurance will not attach to any non-irrigated acreage on which corn, cotton, grain sorghum, soybeans, or sunflowers, was harvested or destroyed after July 1 in the previous year."*

Other solutions/alternatives include:

- b) Allowing coverage by written agreement only, in selected counties, similar to how coverage is provide for continuous cropping wheat in counties with summer fallow practice coverage only.
- c) Providing coverage but at a different rate and yield for acres on which corn, grain sorghum, soybeans, sunflowers or cotton were grown the previous crop year. Note KFB staff interprets this to be similar to how coverage is provided for continuous cropped wheat in counties that allow both continuous and summer fallow practice coverage (see appendix 2 map). In the case of wheat, while the two practices, continuously cropped wheat and wheat seeded on fallow acres, do have different premium rates and yield histories, ALL non-irrigated production is combined for loss determination; and some members have felt that in some years, "better yields" on their summer fallow wheat has prevented them from claiming indemnities on their "lower yielding" continuous cropped wheat.
- d) Establishing criteria under which coverage would be available, such as requiring 4 years of history of growing the crop on acres on which corn, grain sorghum, soybeans, sunflowers or cotton were planted the previous crop year before insurance would be available.

The Risk Management Agency would like to know about any concerns, issues or alternative recommendations (along with any data to support the recommendation).

Appendix 1.

RMA-based Dryland "Reference (T)Yields" in Selected Western Kansas Counties

	Corn NI	GS NI	SunOil NI	Soy NI	Whe SF	Whe CC
Cheyene	47	48	1050	19	30	28
Rawlins	58	49	1034	21	36	29
Sherman	47	49	1050	19	30	27
Thomas	59	55	1050	20	33	29
Wallace	50	42	1054	16	30	28
Logan	53	45	950	18	31	25
Greeley	49	43	950	18	31	27
Wichita	57	52	1105	xxx	33	32
Scott	59	56	1006	19	36	30
Hamilton	48	39	975	xxx	30	xxx
Kearney	51	46	950	xxx	32	xxx
Finney	49	48	1025	xxx	33	xxx
Stanton	44	38	975	xxx	32	xxx
Grant	47	35	975	xxx	31	xxx
Haskell	48	46	1035	xxx	33	xxx
Morton	41	34	975	xxx	29	xxx
Stevens	46	34	975	xxx	28	xxx
Seward	37	34	975	xxx	26	xxx

<http://www3.rma.usda.gov/apps/docbrowser/docbrowserA.cfm>

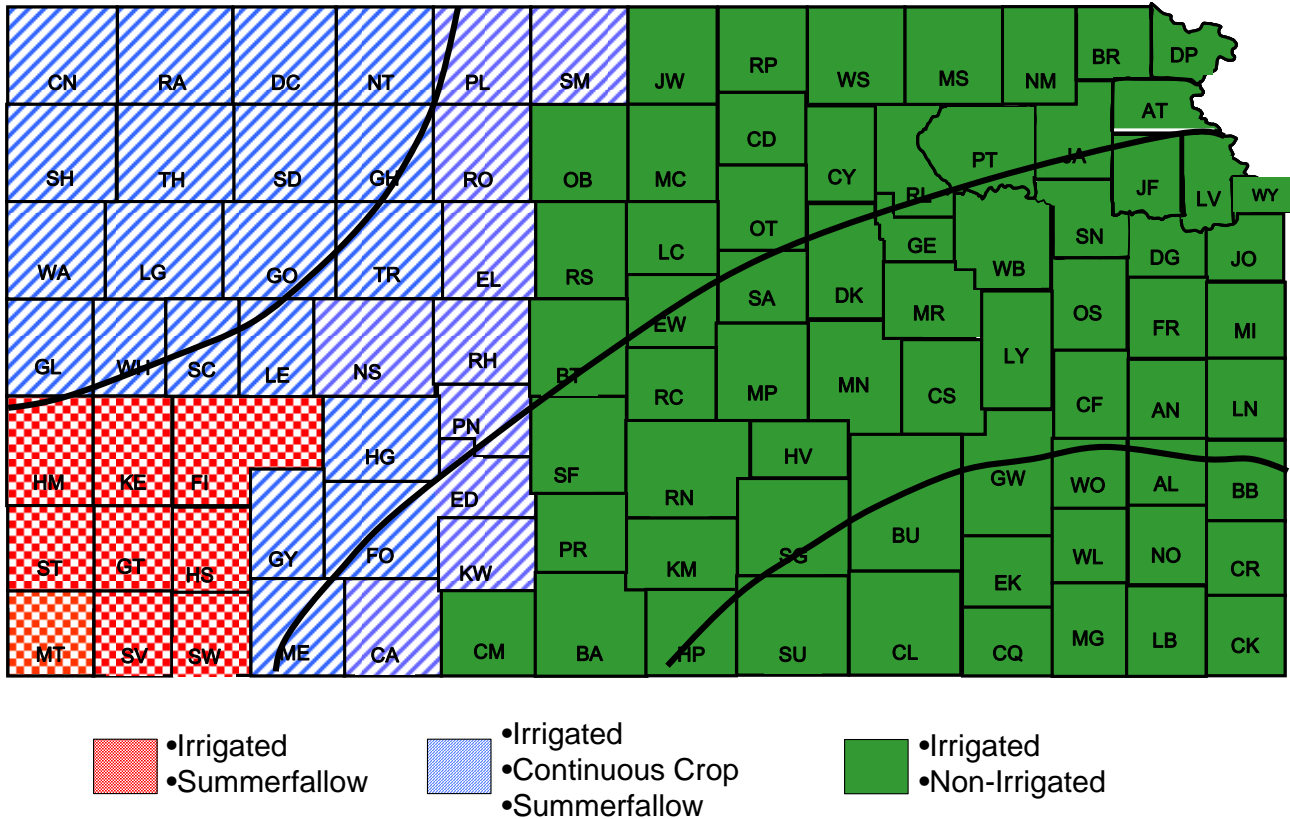
Crop Corn, Grain Sorghum, Sunflower and Wheat – APH
RMA Doc Type: 35-Cov-Rate 2009

NI = Non Irrigated
SF = Summer Fallow
CC = Continuous Crop

Appendix 2.

Dryland Wheat, Western Kansas

Wheat Crop Insurance Policy Availability



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Appendix 3. Dryland Crop Acreage (Source: KASS)

	Fallow Wheat - Seeded				Fallow Wheat - Harvested			
	NW	WC	SW	W. KS	NW	WC	SW	W. KS
1993	1,149,000	1,292,000	1,312,000	3,753,000	1,035,000	1,260,000	1,260,000	3,555,000
1994	1,070,000	1,260,000	1,210,000	3,540,000	1,035,500	1,216,000	1,113,000	3,364,500
1995	1,025,000	1,200,000	1,200,000	3,425,000	995,000	1,129,000	1,114,000	3,238,000
1996	995,000	1,235,000	1,154,000	3,384,000	843,000	527,000	589,000	1,959,000
1997	970,000	1,147,000	1,230,000	3,347,000	923,000	1,096,000	1,175,000	3,194,000
1998	943,000	1,093,000	1,104,000	3,140,000	896,000	1,010,000	1,050,000	2,956,000
1999	855,000	1,033,000	1,036,000	2,924,000	793,000	911,000	925,000	2,629,000
2000	825,000	978,000	925,000	2,728,000	804,000	948,000	883,000	2,635,000
2001	890,000	960,000	990,000	2,840,000	790,000	623,000	731,000	2,144,000
2002	815,000	985,000	960,000	2,760,000	741,000	732,000	634,000	2,107,000
2003	895,000	1,015,000	1,155,000	3,065,000	858,000	957,000	1,074,000	2,889,000
2004	775,000	990,000	935,000	2,700,000	318,000	743,000	842,000	1,903,000
2005	940,000	1,015,000	1,035,000	2,990,000	861,000	961,000	982,000	2,804,000
2006	820,000	895,000	930,000	2,645,000	707,000	805,000	827,000	2,339,000
2007	735,000	855,000	995,000	2,585,000	698,000	809,000	921,000	2,428,000
2008	693,000	738,000	807,000	2,238,000	652,000	671,000	687,000	2,010,000
2009								
Average	899,688	1,043,188	1,061,125	3,004,000	809,344	899,875	925,438	2,634,656
1999 - 08	824,300	946,400	976,800	2,747,500	722,200	816,000	850,600	2,388,800
94/95 Average				3,482,500				3,301,250

	Continuous Wheat - Harvested				Grain Sorghum - Harvested			
	NW	WC	SW	W. KS	NW	WC	SW	W. KS
1993	131,000	68,000	194,000	393,000	115,400	103,600	266,700	485,700
1994	171,000	65,000	199,000	435,000	121,400	111,900	268,000	501,300
1995	168,000	84,000	186,000	438,000	110,500	149,100	297,800	557,400
1996	117,000	35,000	116,000	268,000	192,000	537,700	683,800	1,413,500
1997	192,000	87,000	225,000	504,000	160,000	202,000	395,000	757,000
1998	152,000	108,000	192,000	452,000	169,800	285,300	454,200	909,300
1999	191,000	97,000	155,000	443,000	166,400	343,400	490,200	1,000,000
2000	208,000	149,000	218,000	575,000	147,000	303,000	475,000	925,000
2001	152,000	112,000	154,000	418,000	191,000	551,000	676,000	1,418,000
2002	144,000	99,000	93,000	336,000	123,000	267,000	434,000	824,000
2003	234,000	205,000	263,000	702,000	156,000	266,000	371,000	793,000
2004	104,000	43,000	167,000	314,000	233,000	349,000	410,000	992,000
2005	217,000	160,000	229,000	606,000	139,000	294,000	368,000	801,000
2006	155,000	109,000	155,000	419,000	208,900	335,000	376,000	919,900
2007	313,000	218,000	250,000	781,000	211,000	362,500	454,000	1,027,500
2008	249,000	206,000	178,000	633,000	217,330	373,375	467,620	1,058,325
2009								
Average	181,125	115,313	185,875	482,313	166,358	302,117	430,458	898,933
1999 - 08	196,700	139,800	186,200	522,700	179,263	344,428	452,182	975,873
94/95 Average				436,500				529,350

	Corn - Harvested				Soybeans - Harvested			
	NW	WC	SW	W. KS	NW	WC	SW	W. KS
1993	71,000	11,000	13,000	95,000	1,900	1,000	3,900	6,800
1994	103,000	14,000	8,000	125,000	1,500	400	900	2,800
1995	88,000	15,000	5,000	108,000	1,400	400	800	2,600
1996	120,000	40,000	13,000	173,000	-	-	-	-
1997	184,000	50,000	66,000	300,000	-	-	-	-
1998	239,000	88,000	87,000	414,000	-	-	-	-
1999	279,000	131,000	71,000	481,000	4,700	3,700	3,900	12,300
2000	288,000	164,000	65,000	517,000	9,400	10,300	5,500	25,200
2001	286,000	149,000	77,000	512,000	23,800	7,600	15,600	47,000
2002	45,000	54,000	16,000	115,000	11,500	6,500	500	18,500
2003	86,000	43,000	11,000	140,000	8,500	4,000	2,500	15,000
2004	265,000	82,000	22,000	369,000	24,800	11,400	2,800	39,000
2005	298,000	152,000	51,000	501,000	17,800	7,400	2,800	28,000
2006	283,000	130,000	46,000	459,000	19,300	6,300	3,000	28,600
2007	431,000	251,000	108,000	790,000	17,300	6,000	2,600	25,900
2008	405,000	185,000	68,000	658,000	17,300	6,000	2,600	25,900
2009								
Average	216,938	97,438	45,438	359,813	12,246	5,462	3,646	17,350
1999 - 08	266,600	134,100	53,500	454,200	15,440	6,920	4,180	26,540
94/95 Average				116,500				2,700

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Appendix 3. Continued

Total Oil Sunflower - Harvested

	NW	WC	SW	W. KS
1993	67,100	7,700	12,200	87,000
1994	98,200	14,000	21,000	133,200
1995	87,000	19,500	24,400	130,900
1996	81,500	23,900	22,800	128,200
1997	70,700	14,700	19,400	104,800
1998	66,300	19,700	15,800	101,800
1999	104,000	33,100		137,100
2000	51,700	33,900		85,600
2001	66,800	35,400		102,200
2002	25,700	11,300		37,000
2003	39,400	15,800		55,200
2004	32,400			32,400
2005	62,400	28,100	68,300	158,800
2006	35,800	15,900		51,700
2007	33,900	12,000	25,100	71,000
2008	48,138	17,040	35,642	100,820
2009				

Total Non-Oil Sunflower - Harvested

	NW	WC	SW	W. KS
1993	26,900	4,900	2,400	34,200
1994	38,300	7,600	3,600	49,500
1995	56,400	6,500	2,700	65,600
1996	28,500	8,100	1,900	38,500
1997	11,300	5,600	2,800	19,700
1998	11,000	4,000	2,000	17,000
1999	18,000	4,400		22,400
2000	9,600	2,800		12,400
2001	16,700	6,600		23,300
2002	6,300	3,200		9,500
2003	9,300	5,200		14,500
2004	9,000			9,000
2005	20,600	7,600	10,000	38,200
2006	6,400	1,600		8,000
2007	6,300	4,100	3,500	13,900
2008	7,497	4,879	4,165	16,541
2009				

Average	60,690	20,136	27,182	94,858	17,631	5,139	3,674	24,515
1999 - 08	50,024	22,504	43,014	83,182	10,970	4,487	5,888	16,774
94/95 Average				132,050				57,550

Sum of Dryland Summer Crops

(Grain Sorg., Corn, Soybeans and ALL Sunflower)

	NW	WC	SW	W. KS
1993	282,300	128,200	298,200	708,700
1994	362,400	147,900	301,500	811,800
1995	343,300	190,500	330,700	864,500
1996	422,000	609,700	721,500	1,753,200
1997	426,000	272,300	483,200	1,181,500
1998	486,100	397,000	559,000	1,442,100
1999	572,100	515,600	565,100	1,652,800
2000	505,700	514,000	545,500	1,565,200
2001	584,300	749,600	768,600	2,102,500
2002	211,500	342,000	450,500	1,004,000
2003	299,200	334,000	384,500	1,017,700
2004	564,200	442,400	434,800	1,441,400
2005	537,800	489,100	500,100	1,527,000
2006	553,400	488,800	425,000	1,467,200
2007	699,500	635,600	593,200	1,928,300
2008	695,265	586,294	578,027	1,859,586
2009				

Estimated Acres in a WSF Rotation

(Summer Crop Acreage x 3)

	NW	WC	SW	W. KS
1993	846,900	384,600	894,600	2,126,100
1994	1,087,200	443,700	904,500	2,435,400
1995	1,029,900	571,500	992,100	2,593,500
1996	1,266,000	1,829,100	2,164,500	5,259,600
1997	1,278,000	816,900	1,449,600	3,544,500
1998	1,458,300	1,191,000	1,677,000	4,326,300
1999	1,716,300	1,546,800	1,695,300	4,958,400
2000	1,517,100	1,542,000	1,636,500	4,695,600
2001	1,752,900	2,248,800	2,305,800	6,307,500
2002	634,500	1,026,000	1,351,500	3,012,000
2003	897,600	1,002,000	1,153,500	3,053,100
2004	1,692,600	1,327,200	1,304,400	4,324,200
2005	1,613,400	1,467,300	1,500,300	4,581,000
2006	1,660,200	1,466,400	1,275,000	4,401,600
2007	2,098,500	1,906,800	1,779,600	5,784,900
2008	2,085,795	1,758,882	1,734,081	5,578,758
2009				

Average	471,567	427,687	496,214	1,395,468	1,414,700	1,283,061	1,488,643	4,186,404
1999 - 08	522,297	509,739	524,533	1,556,569	1,566,890	1,529,218	1,573,598	4,669,706
94/95 Average				838,150				2,514,450

Estimated Wheat Acres in a WF Rotation

(Fallow Wheat Acres Harv. - Tot Summer Crops)

	NW	WC	SW	W. KS
1993	752,700	1,131,800	961,800	2,846,300
1994	673,100	1,068,100	811,500	2,552,700
1995	651,700	938,500	783,300	2,373,500
1996	421,000	(82,700)	(132,500)	205,800
1997	497,000	823,700	691,800	2,012,500
1998	409,900	613,000	491,000	1,513,900
1999	220,900	395,400	359,900	976,200
2000	298,300	434,000	337,500	1,069,800
2001	205,700	(126,600)	(37,600)	41,500
2002	529,500	390,000	183,500	1,103,000
2003	558,800	623,000	689,500	1,871,300
2004	(246,200)	300,600	407,200	461,600
2005	323,200	471,900	481,900	1,277,000
2006	153,600	316,200	402,000	871,800
2007	(1,500)	173,400	327,800	499,700
2008	(43,265)	84,706	108,973	150,414
2009				

Estimated Western Kansas Dryland Acres

(Est. WSF & WF*2 Acres + Cont. Wheat Acres)

	NW	WC	SW	W. KS
1993	2,483,300	2,716,200	3,012,200	8,211,700
1994	2,604,400	2,644,900	2,726,500	7,975,800
1995	2,501,300	2,532,500	2,744,700	7,778,500
1996	2,225,000	1,698,700	2,015,500	5,939,200
1997	2,464,000	2,551,300	3,058,200	8,073,500
1998	2,430,100	2,525,000	2,851,000	7,806,100
1999	2,349,100	2,434,600	2,570,100	7,353,800
2000	2,321,700	2,559,000	2,529,500	7,410,200
2001	2,316,300	2,107,600	2,384,600	6,808,500
2002	1,837,500	1,905,000	1,811,500	5,554,000
2003	2,249,200	2,453,000	2,795,500	7,497,700
2004	1,304,200	1,971,400	2,285,800	5,561,400
2005	2,476,800	2,571,100	2,693,100	7,741,000
2006	2,122,400	2,207,800	2,234,000	6,564,200
2007	2,408,500	2,471,600	2,685,200	7,565,300
2008	2,248,265	2,134,294	2,130,027	6,512,586
2009				

Average	337,777	472,188	429,223	1,239,188	2,271,379	2,342,750	2,532,964	7,147,093
1999 - 08	199,904	306,261	326,067	832,231	2,163,397	2,281,539	2,411,933	6,856,869
94/95 Average				2,463,100				7,877,150