

Crop production and cattle census for the 5-state project area

Report prepared for

Legume adoption practices in western central United States: economic and environmental benefits in face of increased climatic variability

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Crop production and cattle census for the 5-state project area

1. Objective: Summarize total crop production and cattle census from the USDA National Agricultural Statistical Service (NASS) report for the geographic area defined by the following coordinates: 100W – 105W and 37N – 42N.

2. Data:

- a. US county and state data layers provided by the USDA – NASS for the continental US.
- b. County-level, 2007 crop statistics for 5 states (CO, KS, NE, SD and WY) from NASS.

3. Methods:

- a. Geographic extent of the study area was digitized and stored as a shape file (ESRI, Redlands, CA) and overlaid on the us states and county data layers (figure 1).

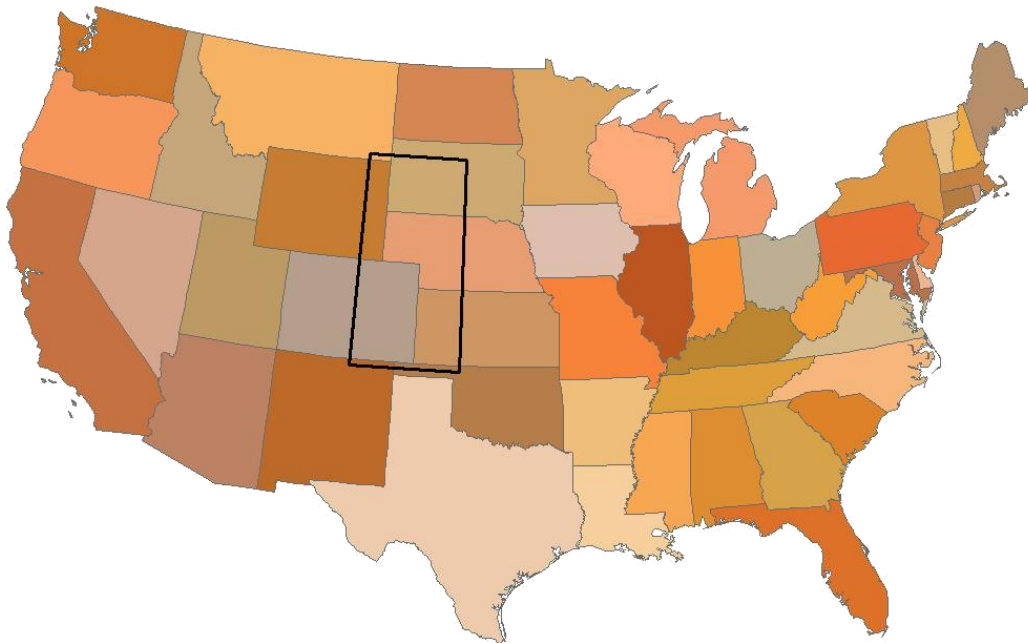


Figure 1: Location of study area (within the black box) in the continental US

b. A subset of the NASS county data layer corresponding to the study area was generated (figure 2).

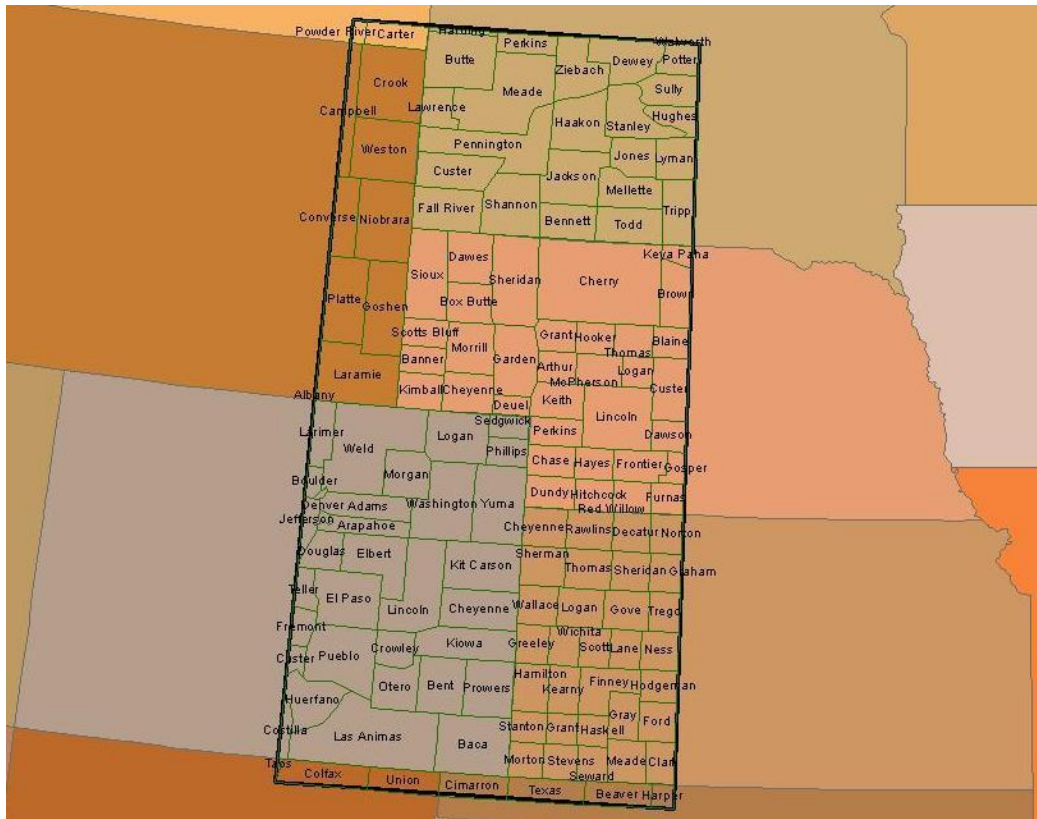


Figure 2: Subset of counties included in this study

c. One hundred and forty counties were selected and the breakdown by state is listed below.

State	Counties
Colorado	33
Kansas	31
Nebraska	34
South Dakota	24
Wyoming	9

d. For counties along the boundaries only part of their area was included since fixed geographic coordinates were used. However NASS data are aggregated at the county level hence crop statistics for the entire county was included in the summary. Nine counties from Montana (2), New Mexico (3) and Oklahoma (4) were not included in the summary.

e. NASS data for each crop (*US & All States County Data – Crops > All Practices > All Counties > Get Data download only*) were imported into Microsoft Excel for the following crops: corn (for grain), corn (for silage), dry hay (all types), sunflower, sorghum (for grain), sorghum (for silage) and winter wheat. NASS

data on cattle and calves for these counties in these five states were also imported and saved as a Microsoft Excel file.

f. Objective was to collect information on following variables for each crop listed above. Non irrigated data were denoted by “PracCode = 2” and all purpose (irrigated, non-irrigated etc.) crops were denoted by “PracCode = 9”.

Planted – non-irrigated (acres)

Harvested – non-irrigated (Acres for Corn for grain, Sorghum for grain, sunflower and Winter wheat) & (Tons for Corn for silage, Hay, Sorghum for silage)

Production – non-irrigated (bushel)

Planted – all purpose (acres)

Harvested – all purpose (acres)

Production – total (bushel – Corn for grain, Sorghum for grain and Winter wheat) & (pounds for Sunflower)

Notes: For some crops information about planted acres was not available (or applicable) such as *corn for silage and hay* since they are not planted like other crops. Also data for some crops were not available for all states.

Sorghum for Grain: WY – No Data Available

Sorghum for Silage: CO, SD, WY – No Data Available

Corn for Silage: KS – No non-irrigated, etc

Hay All: KS, NE, and SD – No non-irrigated, planted, harvested, etc

Sunflower: No non-irrigated

g. Following data were summarized from the cattle and calves tables for the five states

Cattle (all) (head), Beef cows (head) and Milk cows (head)

4. Results:

a. Geographic extent of the study area bounded by the coordinates (100W – 105W and 37N – 42N) was 109,511,638 acres. Excluding areas corresponding to MT, NM and WY reduced the study area to 105,179,972 acres. Area included within the five states is listed below:

State	Counties	Area (acres)
Colorado	33	30852496.3
Kansas	31	16878735.6
Nebraska	34	25136577.5
South Dakota	24	21457669.6
Wyoming	9	10854492.5

b. Area planted and harvested along with the production for each crop is listed in the following table. *Non_irr* indicates non-irrigated fields, *Total* indicates all types (irrigated, non-irrigated etc), and **N** is the number of counties where that crop was planted/harvested in 2007.

Commodity	State	N	Planted Non irr. (Acres)	Harvested Non irr. (Acres)	Production Non irr. (Bushels)	Planted All purpose (Acres)	Harvested All purpose (Acres)	Production All Purpose (Bushels)
Corn for grain	CO	26	836000	781400	47346000	1113200	990100	142252000
	KS	31	743100	698000	51955000	1925000	1833800	277587000
	NE	32	494900	479500	43746500	2145200	2073700	325914200
	SD	24	241800	220100	17698000	462800	382300	34476000
	WY	7	2500	1000	39000	66600	48200	6302500
<i>Total</i>			<i>2318300</i>	<i>2180000</i>	<i>160784500</i>	<i>5712800</i>	<i>5328100</i>	<i>786531700</i>
Corn for silage	CO	24	n.a.	4600	36600	n.a.	96900	2170000
	KS	32	n.a.	0	0	n.a.	43300	842300
	NE	30	n.a.	9300	101700	n.a.	54300	960400
	SD	24	n.a.	14000	66100	n.a.	58100	465600
	WY	5	n.a.	0	0	n.a.	14500	0
<i>Total</i>				<i>27900</i>	<i>204400</i>		<i>267100</i>	<i>4438300</i>
Hay All (Dry)	CO	31	n.a.	261600	356000	n.a.	891700	2812600
	KS	33	n.a.	n.a.	n.a.	n.a.	445200	1737100
	NE	35	n.a.	n.a.	n.a.	n.a.	1333900	2850420
	SD	24	n.a.	n.a.	n.a.	n.a.	1813000	2443400
	WY	9	n.a.	192500	194400	n.a.	462000	848500
<i>Total</i>				<i>454100</i>	<i>550400</i>		<i>4945800</i>	<i>10692020</i>
Sunflower	CO	18	n.a.	n.a.	n.a.	102200	98900	113095000
	KS	27	n.a.	n.a.	n.a.	81400	75700	117588100
	NE	23	n.a.	n.a.	n.a.	38100	35400	42531000
	SD	19	n.a.	n.a.	n.a.	110200	109200	176496000
	WY	0	n.a.	n.a.	n.a.	0	0	0
<i>Total</i>						<i>331900</i>	<i>319200</i>	<i>449710100</i>

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Commodity	State	N	Planted Non irr. (Acres)	Harvested Non irr. (Acres)	Production Non irr. (Bushels)	Planted All purpose (Acres)	Harvested All purpose (Acres)	Production All Purpose (Bushels)
Sorghum for grain	CO	24	91200	66200	1820000	215100	149200	5517000
	KS	31	852500	806600	55998200	1195000	1126000	82848000
	NE	27	106700	67800	5825300	140400	78800	6868000
	SD	24	241800	220100	17698000	462800	382300	34476000
	WY	0	0	0	0	0	0	0
<i>Total</i>			<i>1292200</i>	<i>1160700</i>	<i>81341500</i>	<i>2013300</i>	<i>1736300</i>	<i>129709000</i>
Sorghum for silage	CO	0	n.a.	n.a.	n.a.	0	0	0
	KS	31	n.a.	n.a.	n.a.	n.a.	11700	134300
	NE	9	n.a.	n.a.	n.a.	n.a.	7600	78400
	SD	0	n.a.	n.a.	n.a.	0	0	0
	WY	0	n.a.	n.a.	n.a.	0	0	0
<i>Total</i>						<i>0</i>	<i>19300</i>	<i>212700</i>
Winter wheat	CO	27	1826800	1709500	62934000	2455500	2309900	90336000
	KS	31	3420000	3209000	139375000	3935000	3700000	168830000
	NE	31	1252800	1202800	49577000	1447400	1380400	60724200
	SD	24	1163800	1078700	43025000	1163800	1078700	43025000
	WY	8	92400	87100	1733000	126300	115500	2894000
<i>Total</i>			<i>7755800</i>	<i>7287100</i>	<i>296644000</i>	<i>9128000</i>	<i>8584500</i>	<i>365809200</i>

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Commodity	State	N	Cattle All	Beef Cows	Milk Cows
Cattle & Calves	CO	30	2237000	459500	98900
	KS	31	6966300	961200	218350
	NE	34	2854000	1004500	0
	SD	24	1286000	789000	1700
	WY	9	693000	326750	1100
<i>Total</i>			<i>14036300</i>	<i>3540950</i>	<i>320050</i>

5. References and data sources:

a. US County and State Data in GIS format (NASS) -

http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/Ag_Atlas_Maps/index.asp

(accessed on 3 March 2011 and verified on 27 December 2011)

b. Crop production data in comma delimited file format (NASS)

http://www.nass.usda.gov/Data_and_Statistics/Quick_Stats/index.asp (accessed on 3 March 2011

and verified on 27 December 2011)

6. Contact information:

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