

COVER CROP HAYING AND GRAZING

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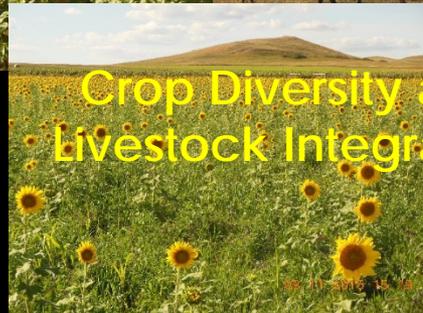
and

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Turkish Research Scholar

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Why Seed A Cover Crop



Crop Diversity and Livestock Integration



Maintaining a Living root & Keeping Soil Covered with Residue

Prevent Erosion
Increase soil organic matter
Increase soil nutrient cycling
Forage for haying and grazing

CHOOSING A COVER CROP MIX

- Many options
- Select a cover crop mix that will feed the subsequent crop in your crop rotation
- Select a mix that has a C:N ratio between 35:1 and 50:1 for rapid microbial decomposition
- Chemical crop injury and carryover

Worst case scenario over 3 locations in North Dakota (Carrington, Fargo, Hettinger)										
	1	2	3	4	5	6	7	8	9	
	Radish	Turnip	Beet	Field Pea	Lentil	Flax	Oats	Barley	dwarf essex rape	sunflower
Widemat ch	MR	MR	.	HR	HR	LR	LR	LR	MR	.
Huskie	LR	LR	0	LR	MR	MR	LR	LR	MR	.
Everest 2.0	LR	LR	0	LR	MR	LR	LR	LR	MR	.
Supremacy	LR	LR	.	LR	LR	LR	LR	LR	LR	.
Powerflex	LR	LR	0	LR	MR	MR	LR	LR	MR	.
Goldsky	MR	LR	.	LR	LR	MR	LR	LR	LR	.
Varro	MR	LR	3	LR	LR	LR	LR	MR	LR	.
Clarity	MR	HR	0	LR	MR	MR	LR	MR	LR	.
2,4-D	MR	LR	.	LR	LR	LR	LR	LR	MR	.
travallas	0	0	3	2	0	0	7	0	0	2
Talinor	0	0	0	0	0	0	8	2	0	1
Stinger	0	0	0	0	0	0	16	0	0	3
Beyond	0	0	0	0	0	0	2	0	0	0
Olympus	0	0	2	1	0	0	12	0	3	0

PLANTING DATE AND CROP TYPE

- Cool, warm season, or a mix of both
- Planting before August 15th use warm and cool season crop types
- After August 15th – use a cool season crop mix
-
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WHAT ABOUT SOIL MOISTURE & RISK?

- Is there enough surface and subsoil moisture?
-
- Planting after August 15 following a previous crop can be a problem.
-
- Probability of success – 80/20

COOL-SEASON COVER CROPS/FALL PLANTING

Cereals/ grasses	Brassicas	Legumes (Nfix)	Others
<ul style="list-style-type: none"> • Winter cereal rye (E, Nsc, M) • Winter triticale (E, Nsc, M) • Triticale (E, Nsc, G) • Barley (E, Nsc, G) • Oats (E, Nsc, G) • Black oats • Annual ryegrass (E, G) • Winter wheat (E,G) 	<ul style="list-style-type: none"> • Radish (S, G, Nsc, Psc) • Turnip (S, G) • Kale (S,E, G) • Winter canola (S,E,G) • Rape (S,E,G) • Winter camelina (S,E,P) • Mustards (S,E) • Ethiopian cabbage (S,E) • Field Pennycress (S,E,P) 	<ul style="list-style-type: none"> • Forage pea(E, G) • Winter Austrian peas (E,G) • Hairy vetch (E, G) • Crimson clover (E,G) • Red clover (E,G) • White clover (E,G) • Sweetclover (E,G) • Berseem clover (E,G) • Chickling vetch (E,G) • Faba bean (E,G) • Lentil (E,G) • Lupin 	<ul style="list-style-type: none"> • Flax (Psc) • Plantain • Chicory

Mixtures: Choose cover crops with different benefits.

Mix 1 soil builder (S) + N source (Nfix)/N scavenger (Nsc) + erosion preventer (E) + others

Mix 2: non-legume broadleaf + legume +cereal

Mix 3: Warm- and cool-seasons (before August 15)

Other ecosystem services: Grazing =G, Wildlife=W, Pollinators=P, Moisture = M, P scavengers= Psc

- https://www.ag.ndsu.edu/plantsciences/research/forages/docs/Selecting_Cover_Crop.pdf

WARM-SEASON COVER CROPS/ SUMMER PLANTING/PREVENTED PLANTING

Cereals/grasses	Legumes (Nfix)	Others
<ul style="list-style-type: none"> • Forage sorghum (E,G,M) • Sudangrass (E,G,M) • Sorghum x sudan (E,G,M) • Foxtail millet (German and Siberian) (E,G,M) • Japanese millet (E,G,M) • Pearl millet(E,G,M) • Proso millet(E,G,M) • Teff(E,G,M) 	<ul style="list-style-type: none"> • Cowpea (G) • Sunnhemp 	<ul style="list-style-type: none"> • Amaranth (P, M) • Buckwheat (P, Psc) • Phacelia (Nsc, P) • Sunflower (P, Nsc) • Safflower • Chicory • Okra

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GRAZING COVER CROP MIX

	%	Lb/Ac
Sunflower	4.0	2
Everleaf Oat - 114	40.0	20
Flex Winter Pea	40.0	20
Hairy Vetch	10.0	5
Winfred Forage Rape	2.0	1
Ethiopian Cabbage	2.0	1
Hunter Leaf Turnip	2.0	1
Lb Seeded/Ac		50.0



GRAZING COVER CROP MIX

	%	Lb/Ac
Stockford Barley	11.66	5.0
Berseem Clover	0.70	0.3
Crimson Clover	0.70	0.3
Red Clover	0.70	0.3
Bayou Kale	2.33	1.0
Indianhead Lentil	6.99	3.0
German Millet	4.66	2.0
Everleaf Oat (114)	11.66	5.0
Field Pea(4010)	46.2	20.0
Dwarf Essex Rape	2.33	1.0
Sorg-Sudan (BMR)	4.66	2.0
Sunflower	4.66	2.0
Purple Top Turnip	2.33	1.0
Lb Seeded/Ac		42.9



HAY COVER CROP MIX

	%	Lb/Ac
Field Pea	53.6	45.0
Stockford Barley	35.6	30.0
Crimson Clover	2.4	2.0
Berseem Clover	2.4	2.0
Sorg-Sudan (BMR)	6.0	5.0
Lb/Ac		84.0



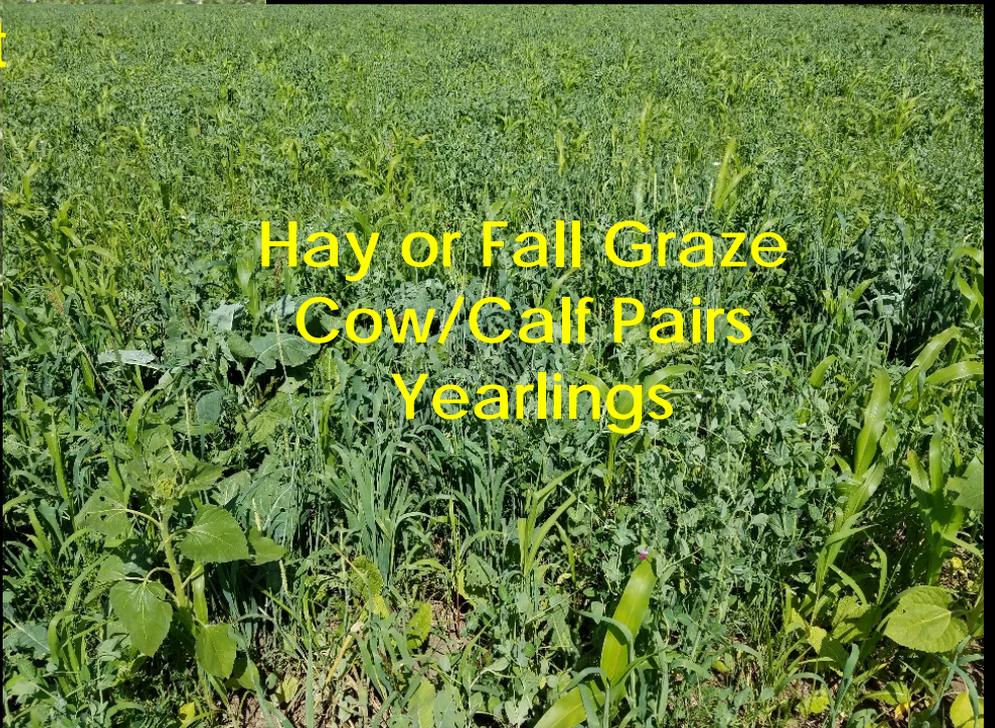
DUAL CROP FIELD PEA GRAIN – COVER CROP



Frost Tolerant
Lower Input Crop
Low Water use Crop
Harvest Before Spr. Wheat



DS Admiral



Hay or Fall Graze
Cow/Calf Pairs
Yearlings

Wtr. Triticale – Hairy Vetch
Seeded after Spr. Wheat
Sept 15

DUAL CROP HAY & COVER CROP



Wtr. Triticale/Hairy
Vetch Hay
Cut June 18

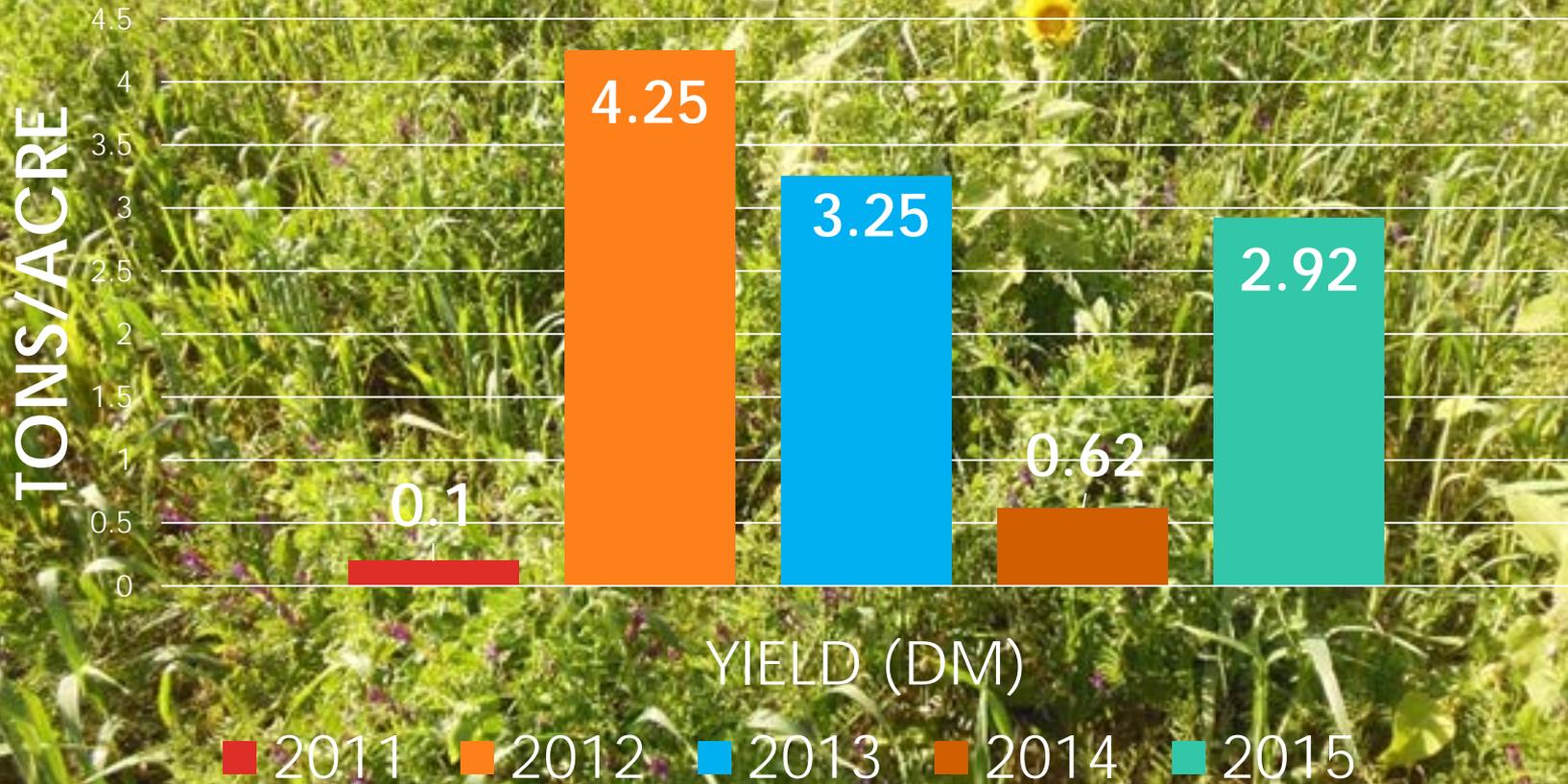


Cover Crop Seeded
June 27



Graze Sept - Oct

MULTI-SPECIES COVER CROP



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COVER CROP HAY - GRAZE - BALE GRAZE



WINTER GRAZING & COVER CROPS

GRAZING METHODS

- Hay
 - Cover Crop, Corn & Sunflower Residue
 - Stockpiled Hayland & Corn Residue
- 2-Year Study
 - 144 May-June Calving Cows
 - 48 Cows/Treatment
 - Wintering Period – 134 Days (November – April)
 - 2# - 32% CP Supplement
 -
 - \$65/T Hay

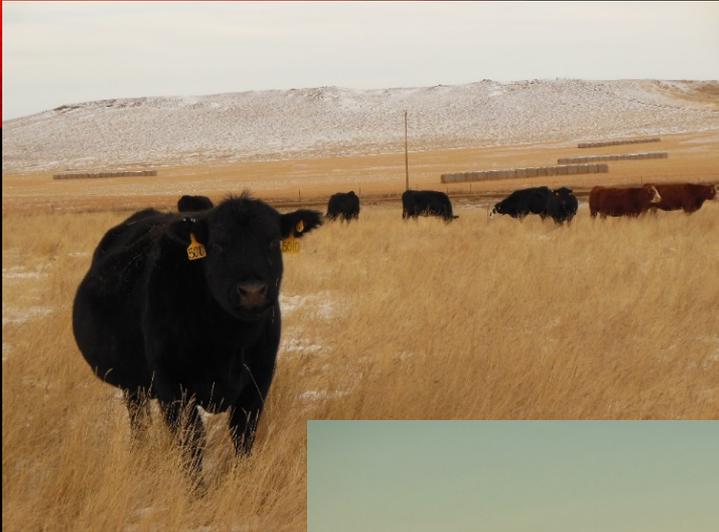
COWS: EXTENDED GRAZING SEASON

- Cover Crop
- Corn and Sunflower Residue

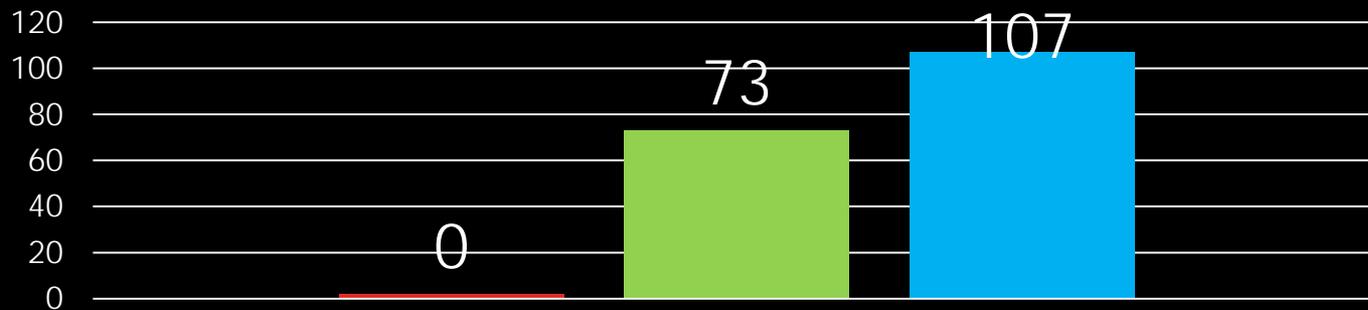


Cows: Extended Grazing Season

- ▶ Stockpiled tame pasture
- ▶ Corn stalk residue



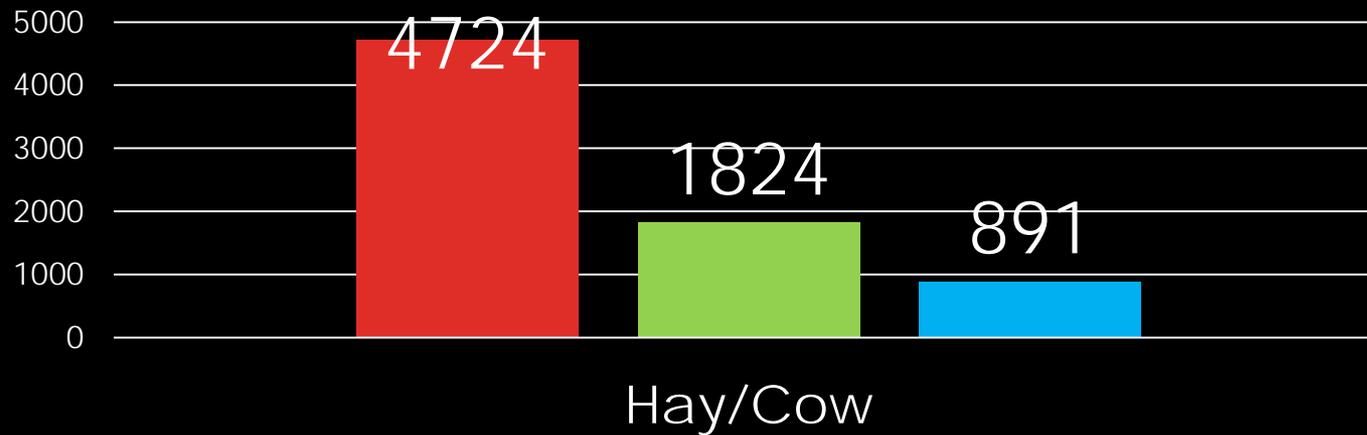
DAYS OF WINTER GRAZING



Days Grazed

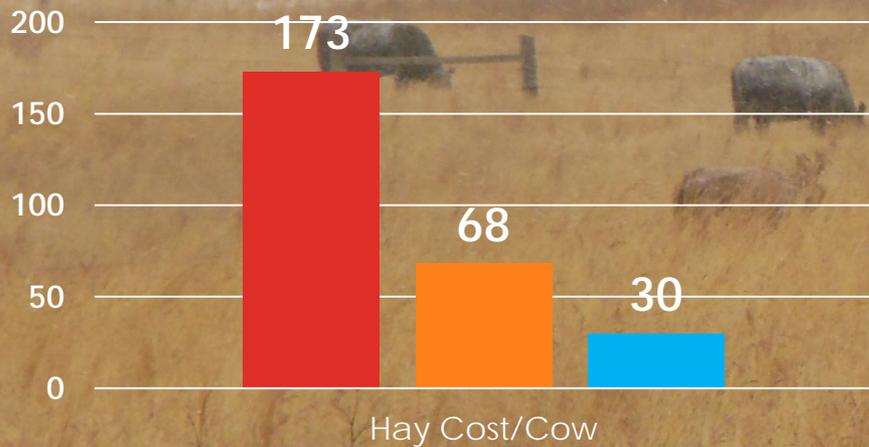
- Control
- CC & Residue
- Grass & Residue

WINTER HAY FED PER COW



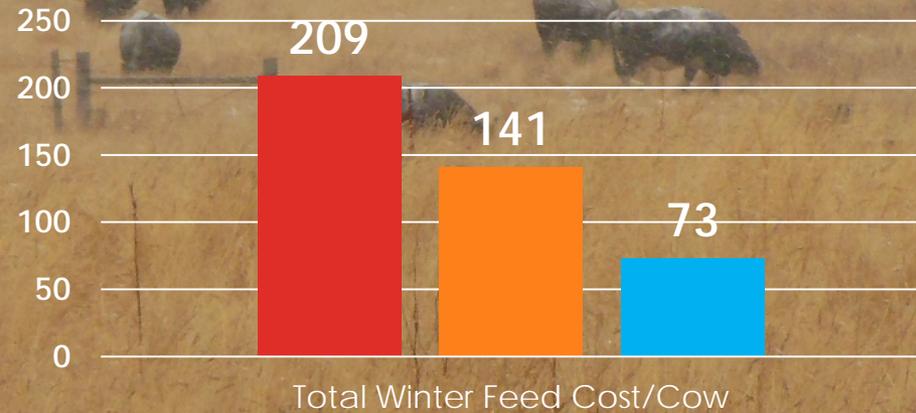
- Control
- CC& Residue
- Grass & Residue

Hay Cost/Cow, \$



- Control
- CC & Residue
- Grass & Residue

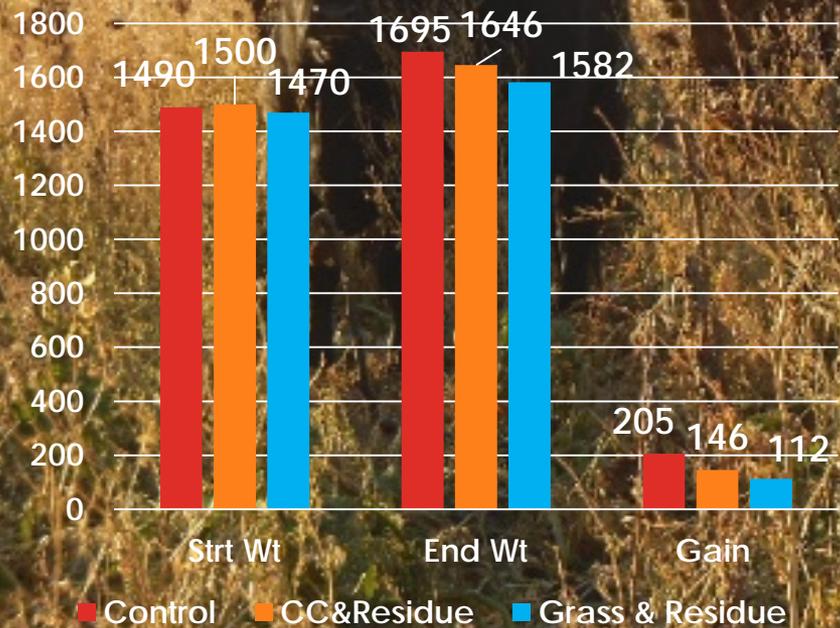
Total Winter Feed Cost/Cow



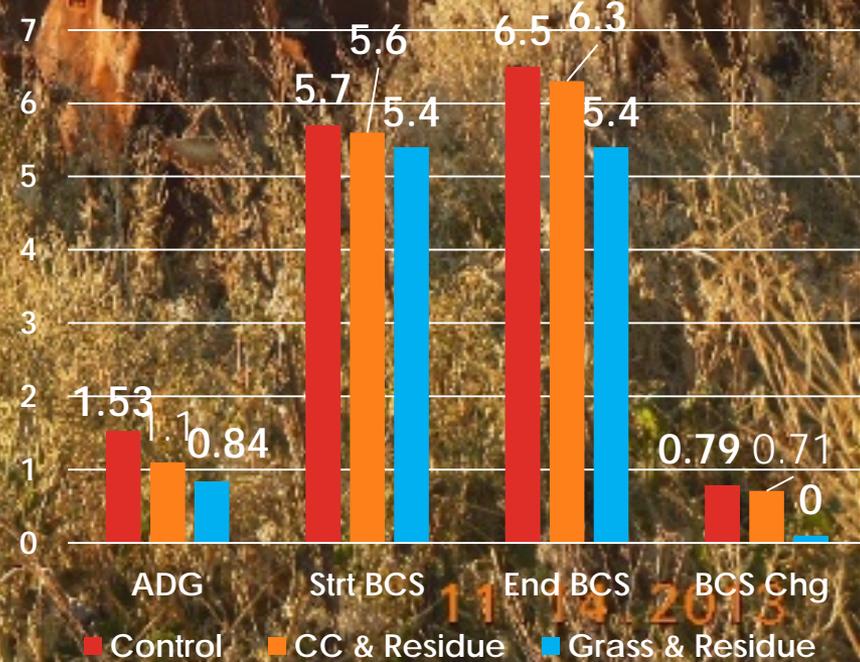
- Control
- CC & Residue
- Grass & Residue

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Cow Wt. Gain, lb



BCS Change



11-14-2015



Thank You