Virginia Cooperative Extension
Virginia Tech • Virginia State University

Fall Forage Update

Fall weed control in pasture & hay

Winter Annuals

Yellow rocket

Purple deadnettle

Annual buttercup

Chickweed

Biennials

Late-summer/fall

Early spring

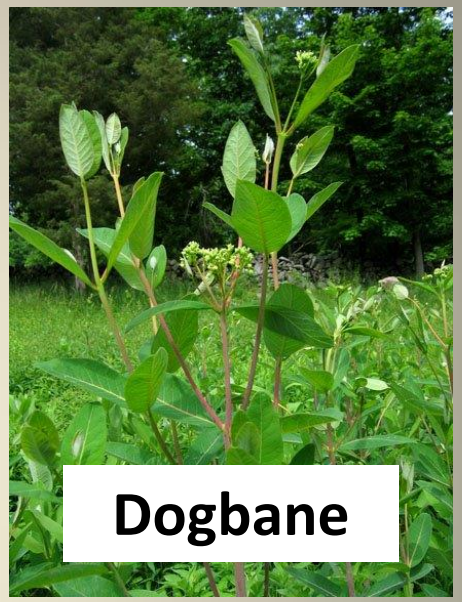
Summer

Other biennials:
Common mullien
Wild carrot
Burdock
Most thistles

Perennials


Curly dock


Virginia Tech Weed ID Guide
Bladder campion


Dogbane


Milkweed


Chicory

Perennials

Why are perennials so hard to get rid of?

- Spread by: seeds, roots, rhizomes, dormant buds
- Massive energy storage organs

Perennials

- Must view perennials differently. You are working toward a long-term campaign to weaken underground storage organs.

General pathway of pasture herbicides

They move with sugars

Spring

Early-summer

Late-Summer

Fall

1. Sugars moving to roots
2. Plenty of leaf to take in herbicide
3. Roots at lowest energy level

Sugar movement

Approach for perennials

- TIMING!!!!!! Early bud to flowering
- Spot spray, hoe, mow the colonists- don’t wait till a big problem
- Plan on spraying 2-3 years in a row to correct problems
- Mow and spray same season
- Give your forages a competitive chance-don’t overgraze/maintain fertility

Nuisance Weed Control in Grass Hay

Yellow & green foxtail

5.3 oz 'Paramount' (*quinclorac*) + 1 pint MSO
$27/acre

Supplemental label for use on hay and pasture

Pre-and-post emergence control of:

foxtail	ragweed
barnyardgrass	lambsquarters
crabgrass	dandelion

On-farm Herbicide Trial Results

Table 5.15 - Susceptibility of Pasture Weeds to Recommended Herbicide Treatments[1] (cont.)

Treatment and rate (lb active ingredient per acre)

Species	Cimarron Plus	Crossbow	2,4-D		Dicamba (Banvel/ Clarity)				2,4-D + Dicamba (Banvel/ Clarity)	triclopyr + clopyralid (Redeem)		2,4-D + Picloram (Grazon P+D)		Surmount	Milestone	ForeFront HL
			1.0-1.5	2.0	0.25	0.50	1.0	2.0	0.75-1.5 + 0.25-0.50	0.42+ 0.14	0.70+ 0.23	0.50+ 0.14	0.75+ 0.20			
Campion, bladder	F	P	P	P	N	P	P	P-F	P-F	P	P	P	F	F	P	P
Carrot, wild	—	G	G	G	P-F	F	G	G	G	G	G	G	G	P	F	F-G
Chamomile, mayweed	G	F	P	P	F	F-G	G	G	G	—	—	—	—	—	F	F-G
Chicory	—	G	G	G	P	P	F	F-G	G	G	G	G	G	—	G	G
Chickweed, common	G	F	P	P	F	F-G	G	G	G	—	—	—	—	G	G	G
Chickweed, mouseear	—	F-G	P	P	P	P-F	F-G	G	P-F[2]	—	—	—	—	G	—	—
Clover spp.	F-G	F-G	P	P	P-F	F-G	G	G	F-G	G	G	G	G	G	G	G
Clover, hop	F-G	F-G	P	P	N	N	P	P-F	P[2]	—	—	—	—	—	G	G
Cockle, corn	—	F-G	F	F	G	G	G	G	G	—	—	—	—	—	—	—
Cocklebur, common	F	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Cowcockle	G	F-G	F	F	G	G	G	G	G	F	G	—	—	—	—	—
Daisy spp.	—	G	G	G	F	F-G	G	G	G	G	G	G	G	G	F-G	G
Dandelion	G	G	G	G	P	F	F-G	G	G	G	G	G	G	G	F	F-G
Dewberry sp.	F-G	F-G	P	P	N	N	P	P-F	P-F[2]	—	—	—	—	G	P	P
Dock spp.	G	F-G	F	F	P-F	P-F	F	F-G	G	G	G	G	G	G	F-G	G
Dogbane, hemp	P	F-G	P	P	P-F	P-F	F	F-G	F	P	P	F	F	G	P	F
Dogfennel	F-G	G	G	G	P	F	F-G	G	G	G	G	P	F	G	P	F-G
Evening primrose	F	G	G	G	P-F	F	G	G	G	—	—	—	—	—	G	G
Fleabane spp.	—	G	G	G	F	F-G	G	G	G	G	G	F	G	G	F-G	F-G
Garlic, wild	G	F-G	F-G	G	P	F	G	G	G	—	—	—	—	N	N	F
Goldenrod spp.	F	G	G	G	P	P	F	F-G	G	F	G	F	G	F-G	P	F-G
Hawkweed spp.	—	G	G	G	P	P	F	F-G	G	P	F	P	F	—	F-G	F-G
Henbit	G	G	P	F	P-F	F-G	G	G	G	F	G	F	G	F-G	G	G
Honeysuckle spp.	P-F	F-G	P	P	N	N	P	P-F	P[2]	F	F	F	G	—	—	—
Horsenettle	P	F	P	P	P-F	P-F	F	F-G	G	F	F	F	G	G	G	G
Horseweed, marestail	G	G	G	G	F	F-G	G	G	G							
Jimsonweed	—	G	G	G	G	G	G	G	G							
Knapweed, spotted	P	F-G	F	F-G	P-F	F	G	G	G							
Knawel (German moss)	—	P-F	P	P	G	G	G	G	G							
Knotweed prostrate	—	F	F	F	G	G	G	G	G							
Kudzu	—	P-F	P	P	N	N	P	P-F	P[2]							
Lambsquarters, ommon	G	G	G	G	G	G	G	G	G							
Lettuce, wild	—	G	G	G	F	F-G	G	G	G							
Mallow, common	—	F	F	F	F	F-G	G	G	F-G							

[1]G(good) = 80-100 percent control, F(fair) = 60-80 percent control, P(poor) = 20-60 control.

Milkweed

$25	3 pints Surmount
$23	8 oz Overdrive
$21	2.1 pints Forefront HL
$38	2.1 pints PastureGard HL
$17	2.5 pints 2,4-D LV4, 1 pint Remedy
$25	3 pints Grazon, 1 pint Remedy

Milkweed

Rhizome from *treated* plant

Healthy rhizome from *untreated* plant

Damage to overall rhizome is limited; healthy tissue & new buds

Milkweed

Check

$25	3 pints Surmount	PMG70-90, ME 60+
$23	8 oz Overdrive	PMG?, ME 40
$21	2.1 pints Forefront HL	PMG70-90, ME 40
$38	2.1 pints PastureGard HL	PMG?, ME 50-60
$17	2.5 pints 2,4-D LV4, 1 pint Remedy	PMG60-80, ME 40-50
$25	3 pints Grazon, 1 pint Remedy	PMG60-80, ME 60+

Dogbane

3 pints Grazon, 1 pint Remedy
2.1 pints PastureGard HL
8 oz Overdrive
2.5 pints 2,4-D LV4, 1 pint Remedy
3 pints Surmount

Dogbane

Most just top-kill

$25	3 pints Grazon, 1 pint Remedy
$38	2.1 pints PastureGard HL
$23	8 oz Overdrive
$17	2.5 pints 2,4-D LV4, 1 pint Remedy
$25	3 pints Surmount

Check

Surmount	picloram	13.20%
	fluroxypyr	10.60%

Crossbow	triclopyr	11.90%
	2,4-D	23.70%

PastureGard HL	triclopyr	32.40%
	fluroxypyr	10.80%

Bladder Campion

$15	3 pints Grazon
$25	3 pints Surmount
$23	8 oz Overdrive
$17	2.5 pints 2,4-LV4, 8 oz dicamba
$15	0.5 oz Cimarron Plus, 8 oz dicamba
$16	2.5 oz Chaparral

Bladder Campion

Check

Top-kill on *treated* plots

Seed pods in *untreated* area

Seed pods in *treated* area

Crown & rhizome regrowth

$15	~~3 pints Grazon~~ PMG60-80, ME 50
$25	~~3 pints Surmount~~ PMG60-80, ME 50
$23	~~8 oz Overdrive~~ PMG?, ME 50
$17	~~2.5 pints 2,4-LV4,~~ ~~8 oz dicamba~~ PMG 55, ME 50
$15	0.5 oz Cimarron Plus, 8 oz dicamba PMG60-80, ME 80
$16	2.5 oz Chaparral PMG?, ME 50

Crown & rhizome from *Chaparral plot*

Chaparral	aminopyralid	52.50%
	metsylfuron methyl	9.45%

Cimmaron Plus	metsylfuron	48.00%
	chlorsulfuron	15.00%

Plantain spp.

$13	2.5 pints 2,4-D LV4 8 oz dicamba
$10	0.5 oz Cimarron Plus
$23	8 oz Overdrive
$20	2.1 pints Forefront HL
$15	3 pints Grazon

Plantain spp.

$13	~~2.5 pints 2,4-D LV4~~ ~~8 oz dicamba~~	PMG90, ME 50
$10	~~0.5 oz Cimarron Plus~~	PMG90, ME 90
$23	~~8 oz Overdrive~~	PMG?, ME 50
$20	2.1 pints Forefront HL	PMG70-90, ME 90+
$15	3 pints Grazon	PMG90, ME 90

Horsenettle

$23	8 oz Overdrive
$15	3 pints Grazon
$13	2.5 pints 2,4-LV4, 8 oz dicamba
$20	2.1 pints Forefront HL
$25	3 pints Surmount
$15	0.5 oz Cimarron Plus, 8 oz dicamba
$38	2.1 pints PastureGard HL

Horsenettle

Check

8 oz Overdrive	$23
3 pints Grazon	$15
2.5 pints 2,4-LV4, 8 oz dicamba	$13
2.1 pints Forefront HL	$20
3 pints Surmount	$25
0.5 oz Cimarron Plus, 8 oz dicamba	$15
2.1 pints PastureGard HL	$38

Horsenettle

Fall forage options:

Oct. 1 – 30 days after planting

1 ½ bu oats + 1 ½ bu rye

Also tried

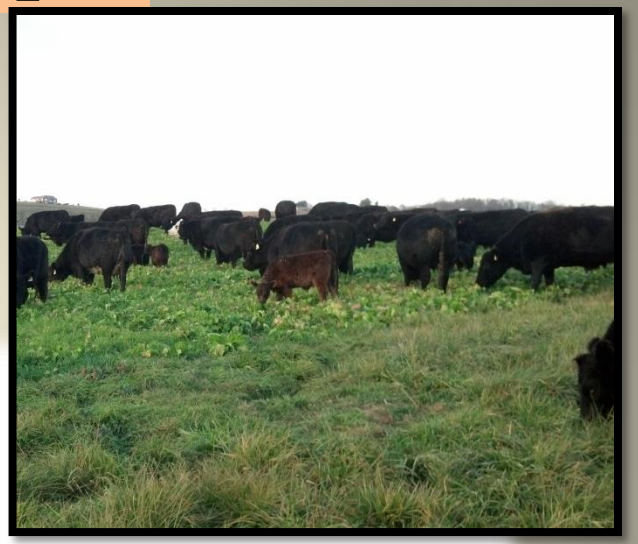
1 ½ bu oats + 50 lbs. barley

2 bu rye + 3 lbs. turnip

2 bu oats,10 lbs.clover,15 lbs.Italian ryegrass

Nov. 1: Strip-grazing oats & rye

Nov 15: strip-grazing rye & turnip



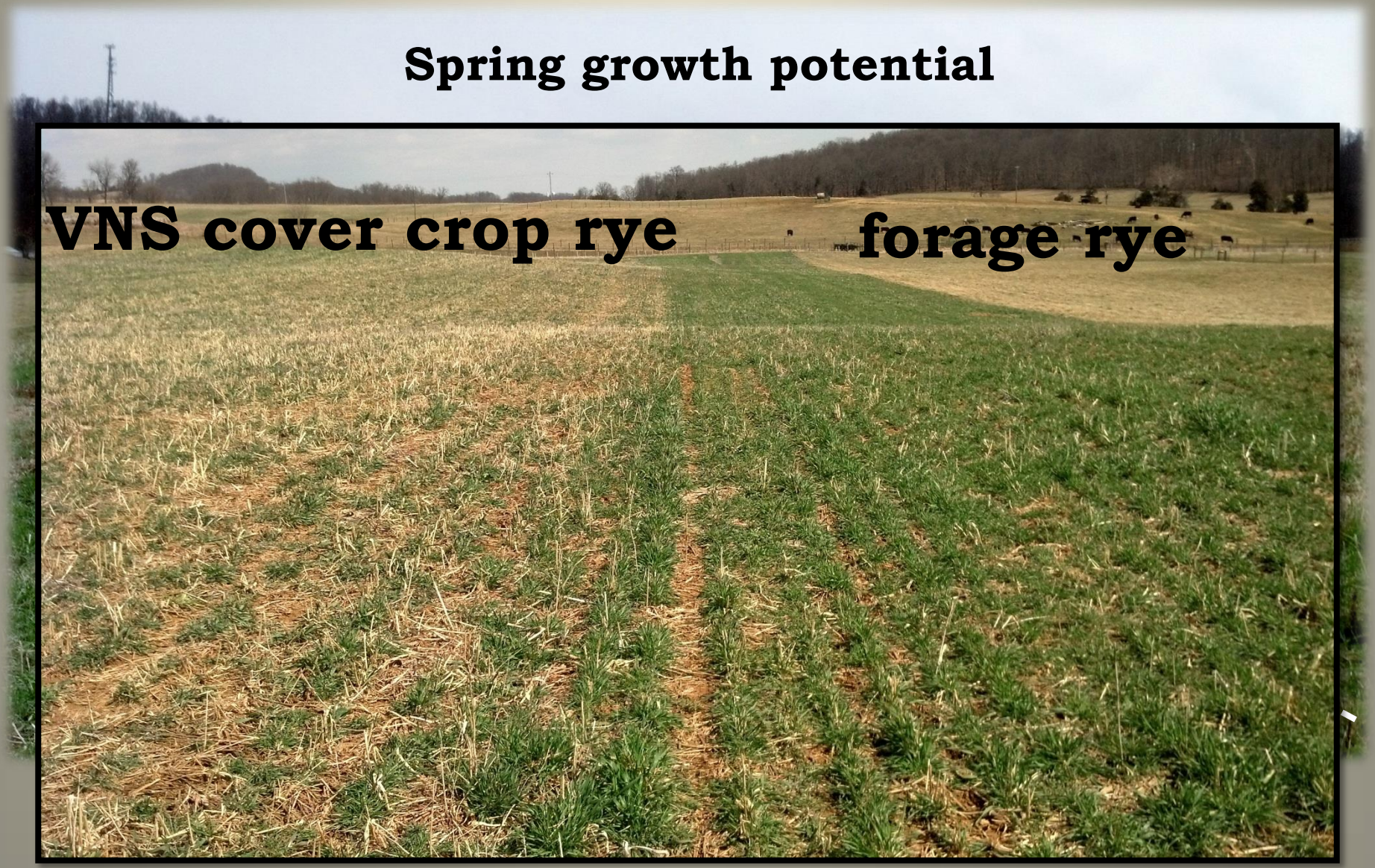
Dec 15: field cover going into winter

oats & rye

forage rye

VNS cover crop rye

Spring growth potential



How well did forage quality meet animal need?

Mixture	Dry yield (lbs./acre)	TDN (%)	CP (%)
oats, Italian ryegrass, crimson clover	2484	81.2	20.0
oats, cover crop rye	1929	82.8	19.5
oats, forage rye	1865	82.7	19.5
oats, barley, forage rye	1492	80.5	17.3
forage rye, Appin turnip	1993	88.8	28.2

Requirements for lactating beef cow: 59% TDN, 10% CP

Rye and barley fields were grazed again in springtime.

2 tons/acre of grazeable dry matter/acre!

Another option.

- Graze in fall.
- Graze in early-spring.
- Pull cattle off prior to stem elongation and still harvest silage or grain.

Demonstrated this in 2012.

Small grain just prior to stem elongation

Bottom Line...

- A savings of roughly $1.10/head each day cows grazed rather than fed hay (60 cows for 57 days)
- Great option for
  - Extending fall grazing season
  - fall calving cows in lactation
  - Putting weight on weaned calves

Summer Annual Forages

Pearl millet and forage turnips

	Yield/acre (lbs. DM)	Crude protein (%)	Digestible energy (% TDN)
Pearl millet, turnip	6123	26	78

Pearl millet & turnip

Pearl millet regrowth from basal tillers

Buckwheat, sorghum-sudangrass

Sorghum-sudan, buckwheat...	Yield/acre (lbs. DM)	Crude protein (%)	Digestible energy (% TDN)
	8712	21	79

‘Grazemaster’ BMR tillering corn

	Yield/acre (lbs. DM)	Crude protein (%)	Digestible energy (% TDN)
Mastergraze' BMR corn	7000	15	75

Annual (*striate*) lespedeza

	Yield/acre (lbs. DM)	Crude protein (%)	Digestible energy (% TDN)
annual lespedeza	3000	20	67

How well did forage quality meet animal need?

	Yield/acre (lbs. DM)	Crude protein (%)	Digestible energy (% TDN)
Summerfeast	6123	26	78
NRCS mixture	8712	21	79
Mastergraze' BMR corn	7000	15	75
annual lespedeza	3000	20	67
forage crabgrasses	4000	15	60

Requirements for lactating beef cow: 59% TDN, 10% CP

		Final feed costs		
	seed	$/ton dm	$/head/day (calves @ 12.5 lb/day)	
Summerfeast'	$31.60	$24.56	$0.15	67 cow days/ac
NRCS mixture	$62.50	$24.36	$0.15	67 cow days/ac
Mastergraze' BMR corn*	$72.50	$35.74	$0.22	63 cow days/ac
annual lespedeza*	$30.00	$29.07	$0.18	
forage crabgrasses*	$40.00	$26.80	$0.17	
** Based on projected yields*				

Summary...

Economical summer nutrition for:

- Putting weight on weaned calves or *for* fenceline weaning calves (forward grazing)
- Filling the summer forage gap
- Transitioning to a fall perennial forage seeding
- Flushing ewes for fall breeding
- Backgrounding/finishing?
- Summer fill-in for winter feeding areas?
  - *Lespedeza or crabgrass*

2013-14 Orchardgrass Maturity Demonstration: Raphine

	Rank	Head emergence	Full heading
Olympia	1	7-May	28-May
Hallmark	2	7-May	28-May
Potomac	3	13-May	28-May
Shiloh II	4	13-May	28-May
Benchmark Plus	5	13-May	28-May
Tekapo	6	19-May	4-Jun
Athos	7	24-May	4-Jun
Haymaster	9	19-May	10-Jun
Extend	8	13-May	10-Jun
Profit	10	19-May	10-Jun
Echelon	11	28-May	10-Jun

- **Late-maturing varieties can start heading up to 2 weeks later**
- **Late-maturing varieties *can* yield less at 1st cutting**

A look at orchardgrass varieties…

Results of 14 years of data from Kentucky Variety Trials 1999-2013

Variety	Relative Yield
Benchmark	104
Benchmark Plus	104
Hallmark	100
Bounty	100
Endurance	104
Persist	107
Potomac	100
Tekapo	90
Haymate	103
Haymaster	96
Extend	106
Athos	102
Profit	104

Source: University of Kentucky

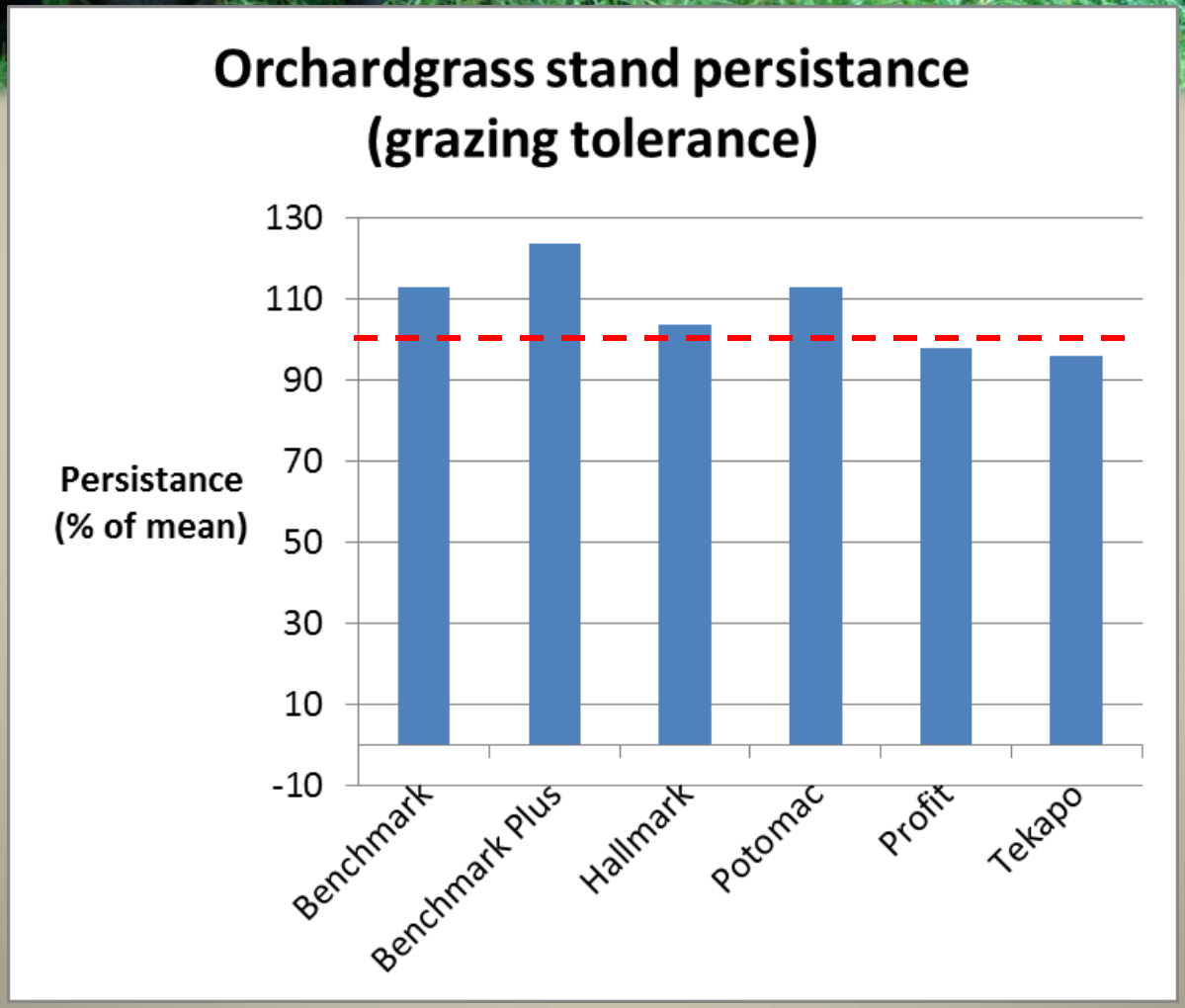
Most Recent Virginia Tech Trial 2008-2010

Variety	Total 2008-10
Persist	22909
Endurance	22639
Benchmark Plus	22422
Barexcel	22235
IS-OG-39	22210
RAD-ECF34	22164
RAD-MCF37	22149
Olympia (GA-OG1)	22121
Shiloh II	22098
Profit	22095
Ambassador	22023
Ambrosia	21680
Cheyenne	21526
WP300	21097
Potomac	20895
Intensiv	20867
Tekapo	20488
Barlemas	20322
CV (%)	**5**
LSD (0.10)	**1338**

Source: Chris Teutsch, Virginia Tech

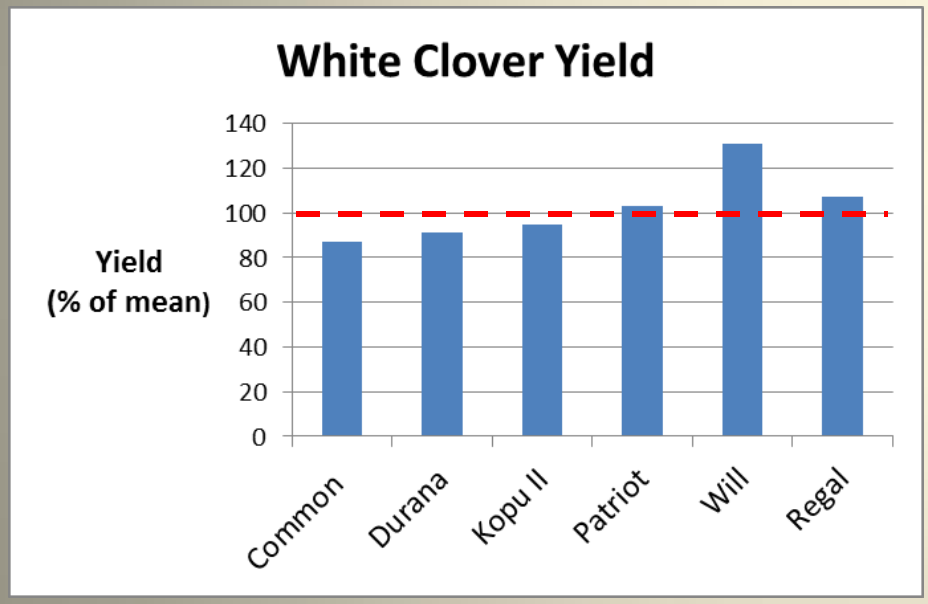
Conclusion: There is not much difference among productivity of varieties available in the Valley.
Management has a bigger effect on productivity.

A look at orchardgrass varieties…

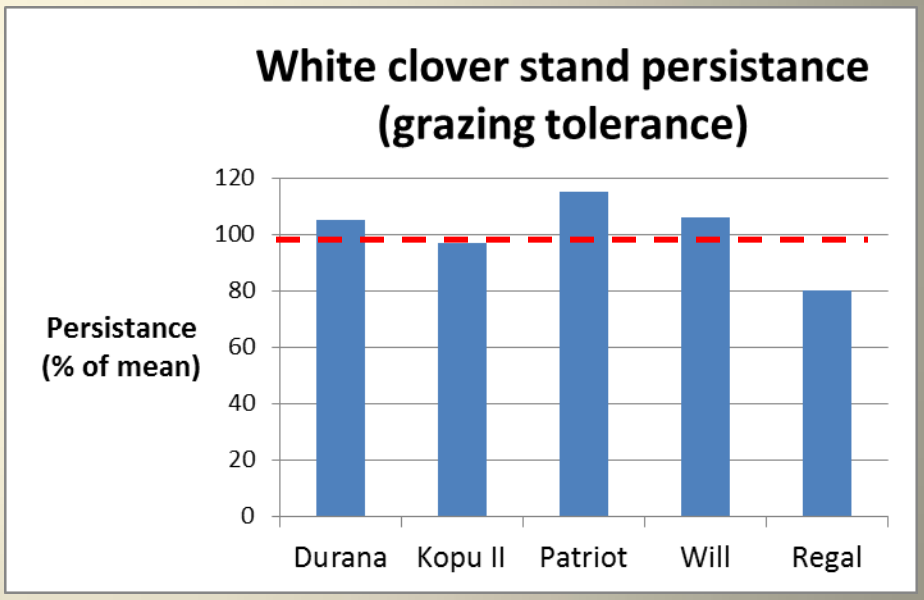


Source: University of Kentucky

White clover

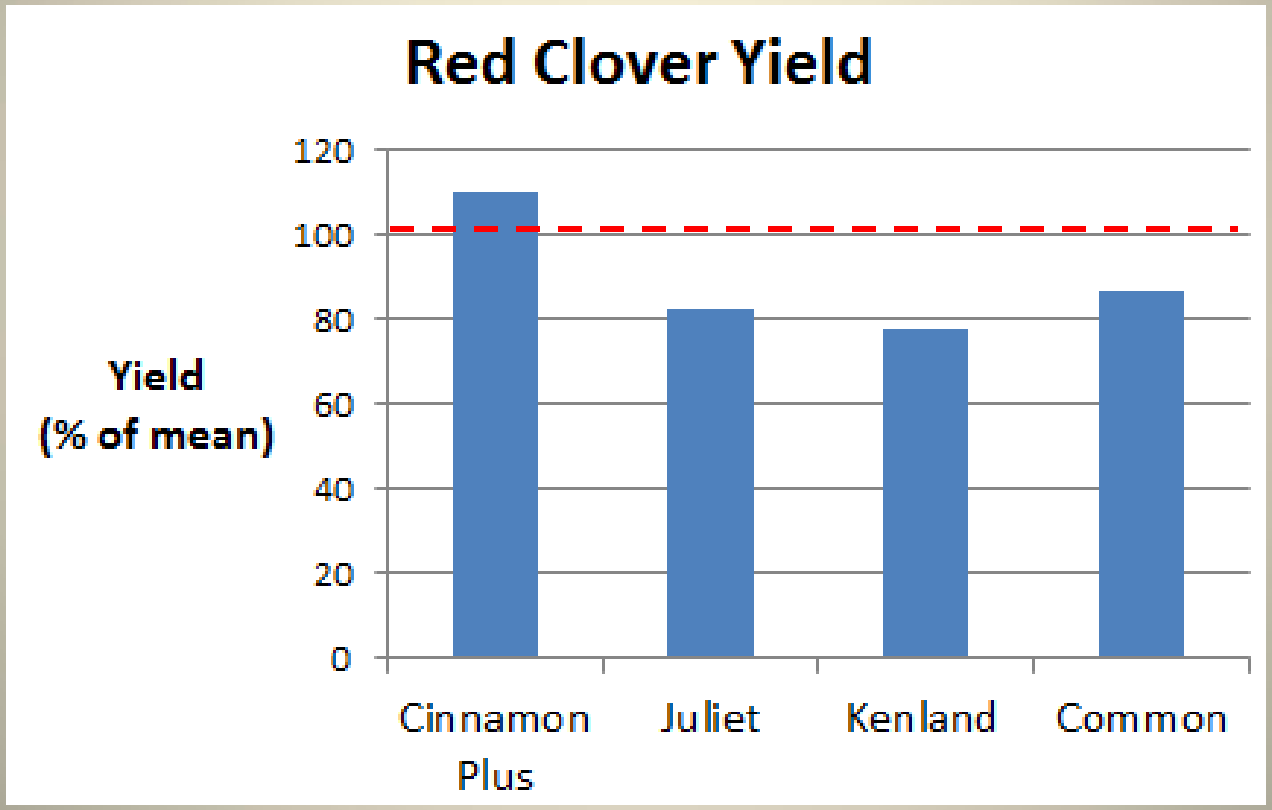


Source: University of Kentucky



Source: University of Kentucky

Red Clover


Red Clover Yield
Yield
(% of mean)
120
100
80
60
40
20
0
Cinnamon Plus
Juliet
Kenland
Common

Kentucky Bluegrass

Kenucky Bluegrass	
Variety	**Mean yield**
Common	68
Ginger	112
Kenblue	103
Lato	116

Source: University of Kentucky

Timothy

Timothy	
Variety	**Mean yield**
Barfleo	93
Barpenta	77
Clair	109
Climax	98
Derby	113
Dolina	96

Source: University of Kentucky

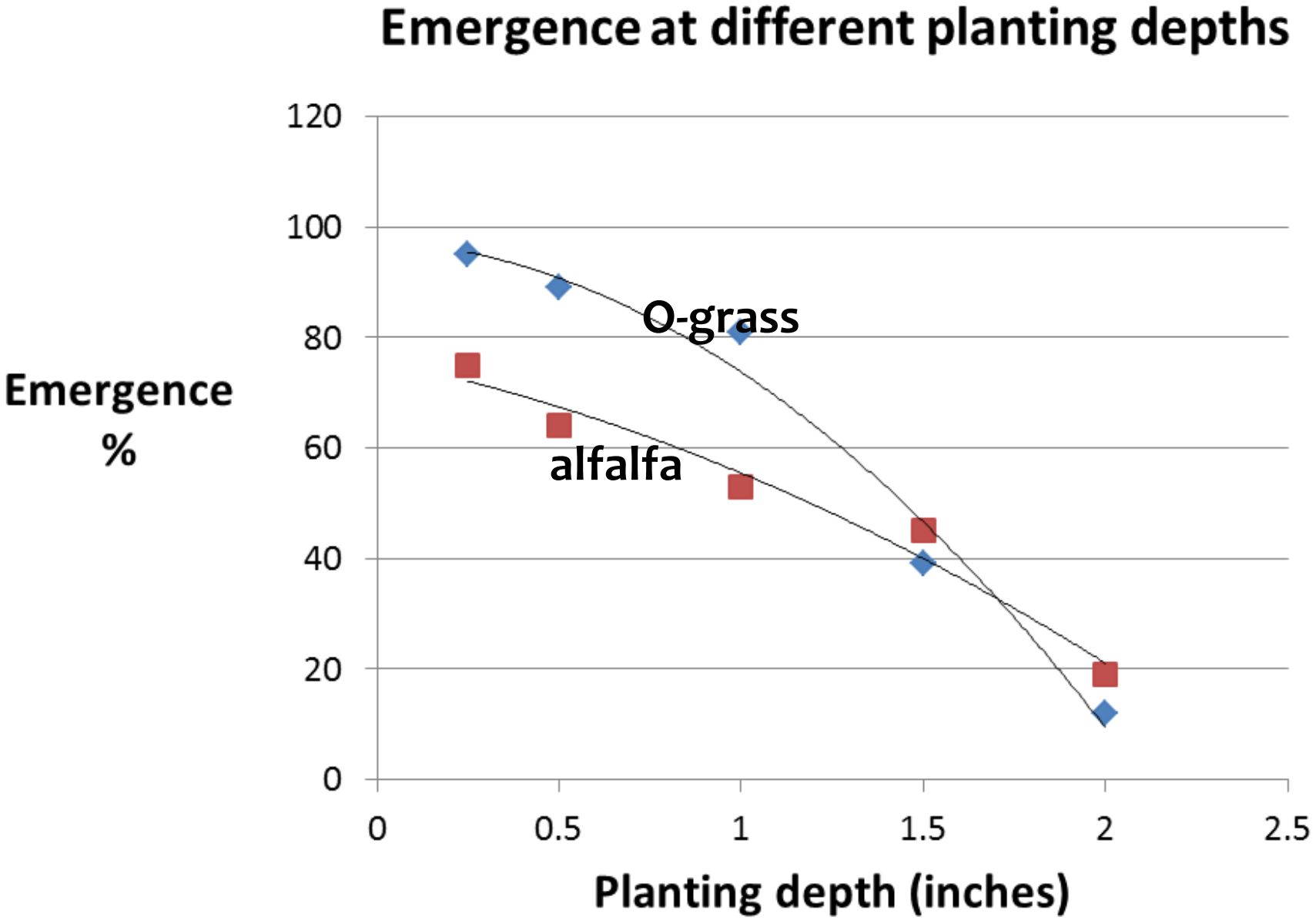
Keys to Forage Establishment

1. Seed Depth

Table 2. Recommended seeding depth for forage crops.

crop	*depth (inches)*
alfalfa	1/4 to 1/2
clovers	1/4 to 1/2
bermudagrass	1/4 to 1/2
tall fescue, orchardgrass, timothy, annual ryegrass, small grains	1/4 to 1/2
pearl millet	1/2 to 1 1/2
sorghum x sudangrass hybrid	1 to 2

University of Kentucky


Emergence at different planting depths
Emergence %
120
100
80
60
40
20
0
0
0.5
1
1.5
2
2.5
O-grass
alfalfa
Planting depth (inches)

Balas 1987.

Too deep…

- Slow or no emergence
- Reduced vigor upon emergence

One of top reasons forage seedings fail.

2. Timing

Rule of thumb: Grasses should be at least 3-4" tall before winter

Alfalfa should have 3 trifoliate leaves & crown

Underdeveloped plants result in reduced survival, less vigor, and lower first- season yield.

Grasses

Spring deadline:
April 15

Fall deadline:
Sept. 15

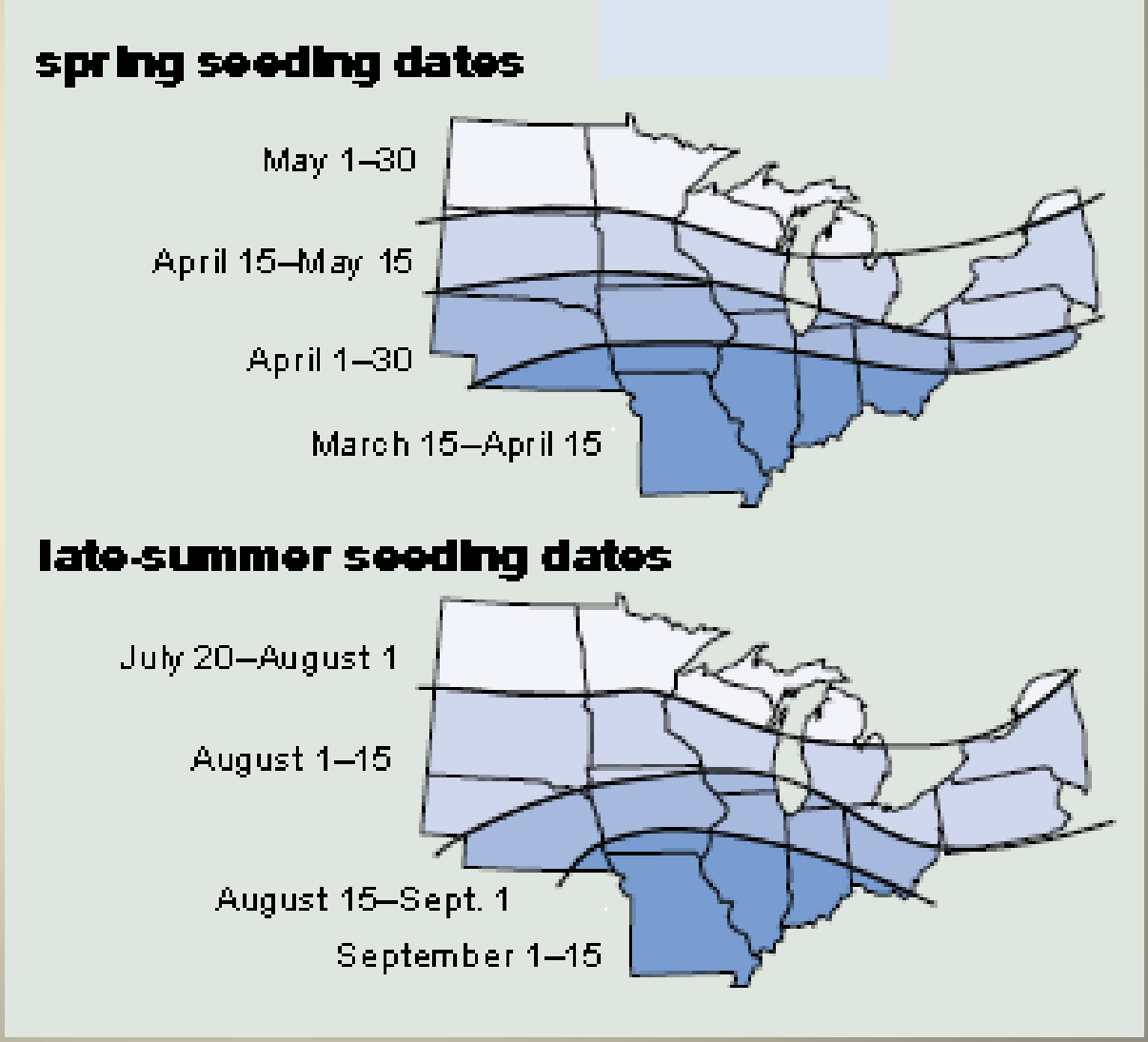
Alfalfa

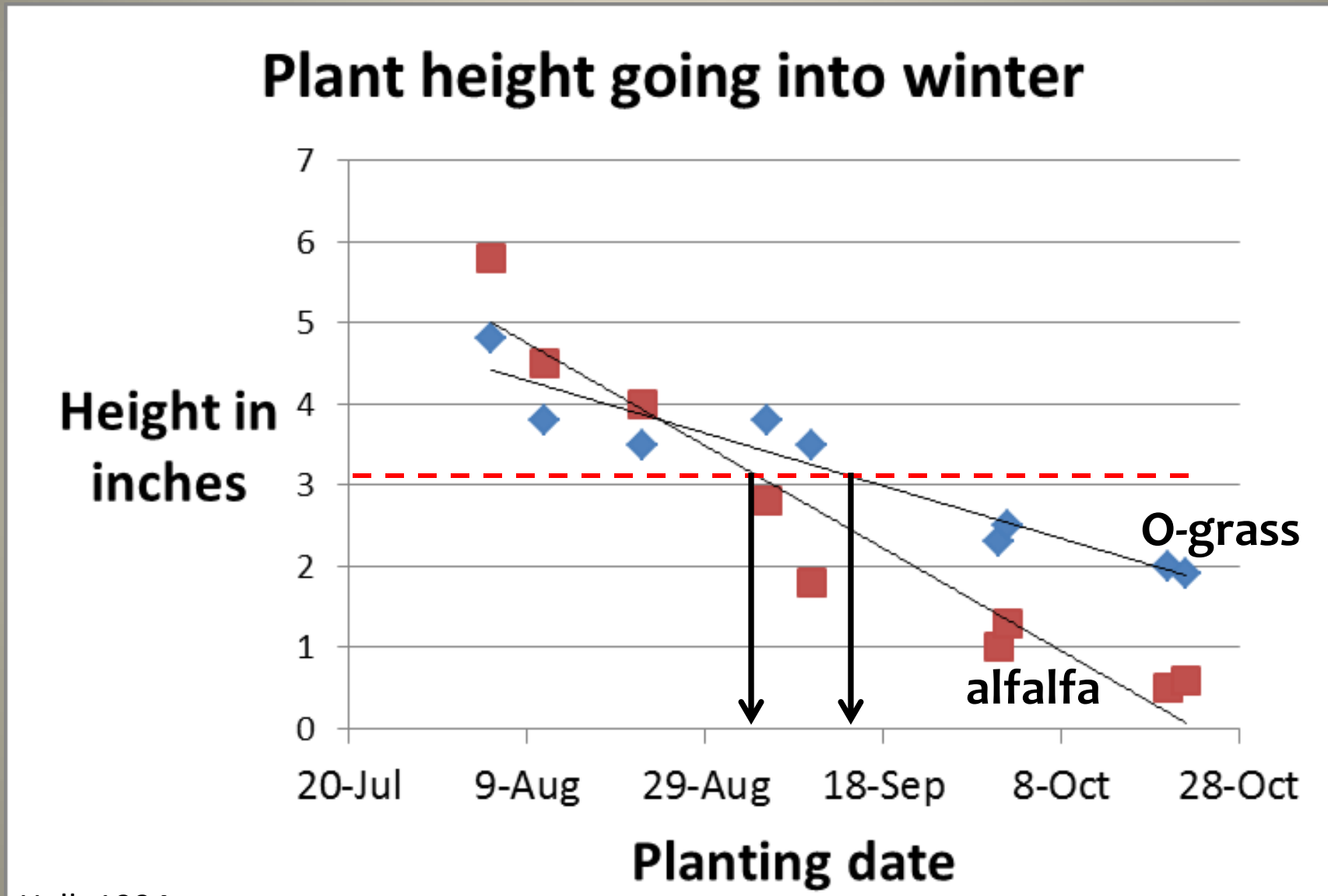
Contractile growth – takes about 2 months

Alfalfa

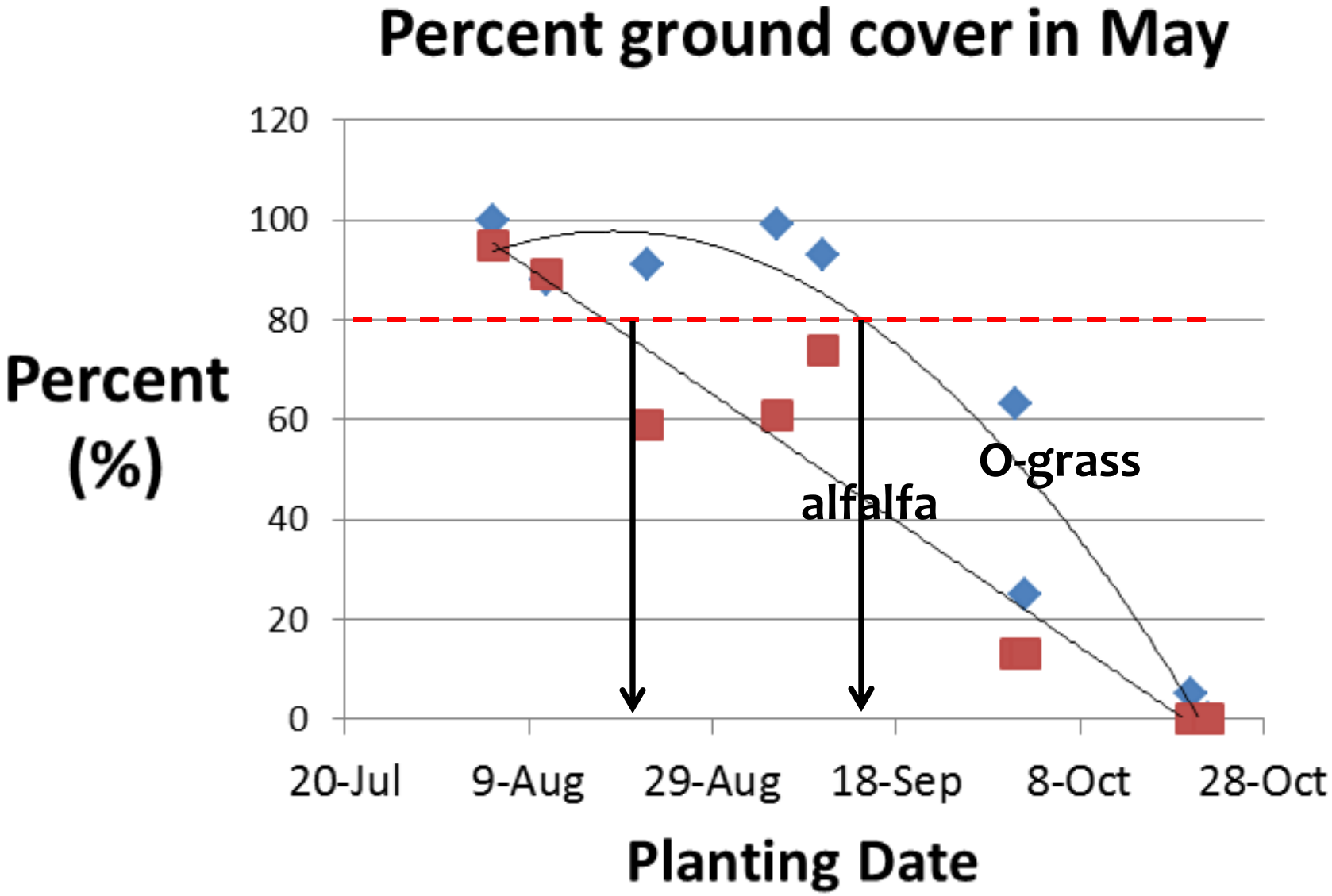
Spring deadline: April 15

Fall deadline: Sept. 1

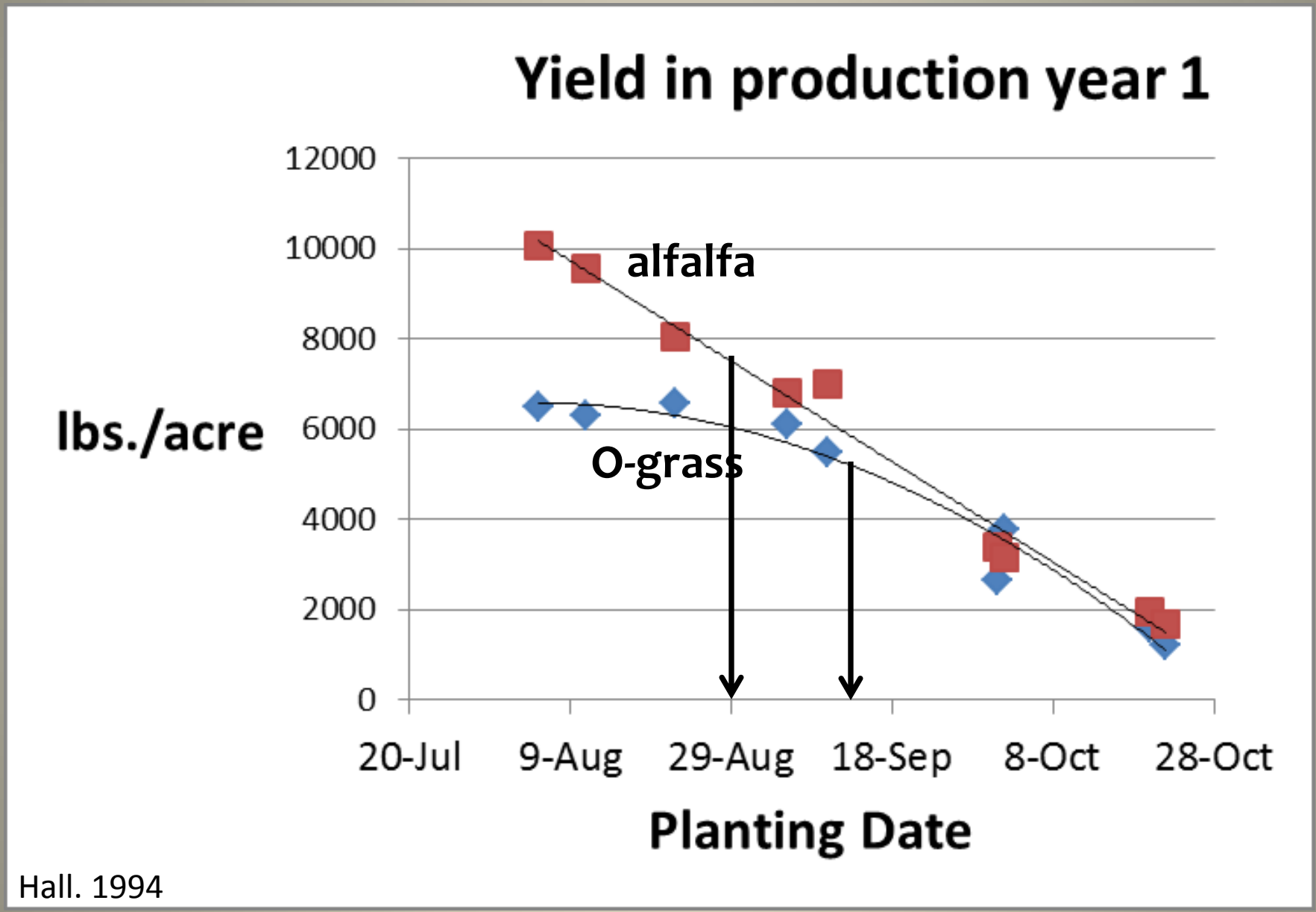



Plant height going into winter
Height in inches
7
6
5
4
3
2
1
0
20-Jul
9-Aug
29-Aug
18-Sep
8-Oct
28-Oct
Planting date
O-grass
alfalfa

Hall. 1994


Percent ground cover in May
Percent (%)
120
100
80
60
40
20
0
20-Jul
9-Aug
29-Aug
18-Sep
8-Oct
28-Oct
Planting Date
O-grass
alfalfa

Hall. 1994


Yield in production year 1
lbs./acre
12000
10000
8000
6000
4000
2000
0
alfalfa
O-grass
20-Jul
9-Aug
29-Aug
18-Sep
8-Oct
28-Oct
Planting Date

Hall. 1994

3. Field Preparation

Goals: proper depth & seed to soil contact

Beware of herbicide plantback restrictions…

2,4-D…….Next season
Banvel……..20 days per pint
Grazon……..3 months
Forefront….3 months
Cimmaron..2 months

5. Fertility

Fertilize based on a 4" soil sample. Test & amend the season *prior* to planting.

- pH: 6+ for grasses, 7 for alfalfa
- P, K
- Grasses:
  - 25-40 lbs. nitrogen at planting

not inoculated

inoculated

What affects nodulation?

- pH
- live inoculant!

Seeding rates

crop	seeding rate (lb/acre)
tall fescue	15
orchardgrass	15
timothy	9
wheat	90
rye	120
annual ryegrass	20
bermudagrass	6 - 10
pearl millet	10 - 15
sorghum X sudangrass hybrid	30
alfalfa	15 - 20