

Assessing Pasture Grasses, Legumes and Pasture Blends for Varying Soil Conditions in New England and Pennsylvania: A NE SARE Project

Stephen Herbert, Sarah Weis and Timothy Randhir, Un. of Massachusetts, Sid Bosworth and Rachel Gilker, Un. of Vermont, Matt Sanderson, USDA-ARS, PA, Kevin Kaija, USDA-NRCS, VT, Richard Brzozowski, Un. of Maine, Carl Majewski, Un. of New Hampshire

Introduction:

Many farmers contact Extension and USDA-NRCS seeking information and recommendations on pasture species and varieties. This topic was mentioned often by farmers at meetings and in conference calls for the Pasture Research Center for New England and Eastern New York, and at Vermont Grass Farmers’ Association meetings. The Northeast Pasture Consortium also reaffirmed this in 2006 as a research priority.

Our hypotheses are (i) that improved information on forage species and varieties will increase economic benefit to farmers, and (ii) that this can be integrated into farm practices through participatory research with farmers, complementing outreach and education.

Methods:

Three sites with varied growing season lengths resulting from different latitudes and elevations were seeded in the Fall 2007. These sites have varied soil conditions from deep fine sandy loam alluvial soil (UMass - Connecticut River), heavier upland or hill soils in Vermont (Randolph, VT), and a silt loam soil near State College, Pennsylvania.

Twenty five to 28 pasture blends and mixtures were seeded with seed obtained from commercial companies. Seed mixtures varied from 2 to 7 species sometimes with more than one variety within a species. Pastures were rotationally grazed with beef cattle.

Commercial blends used in MA with blend number and number of species included in parenthesis (,):

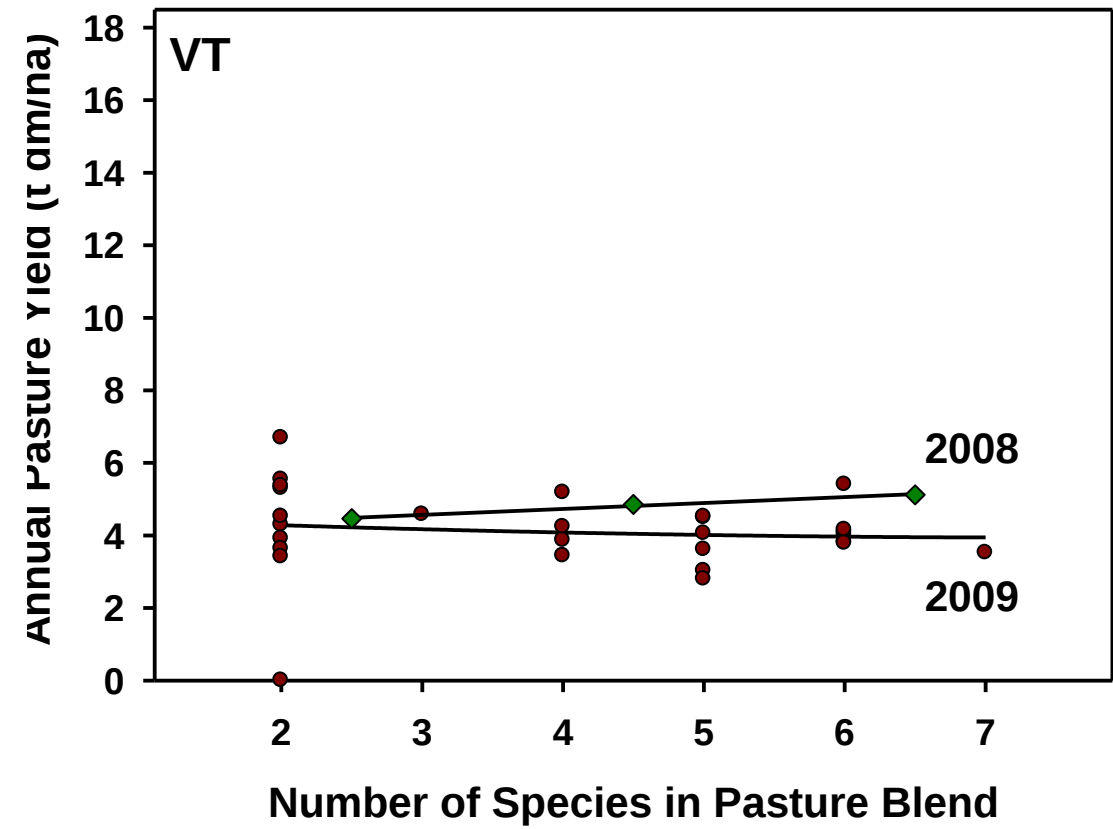
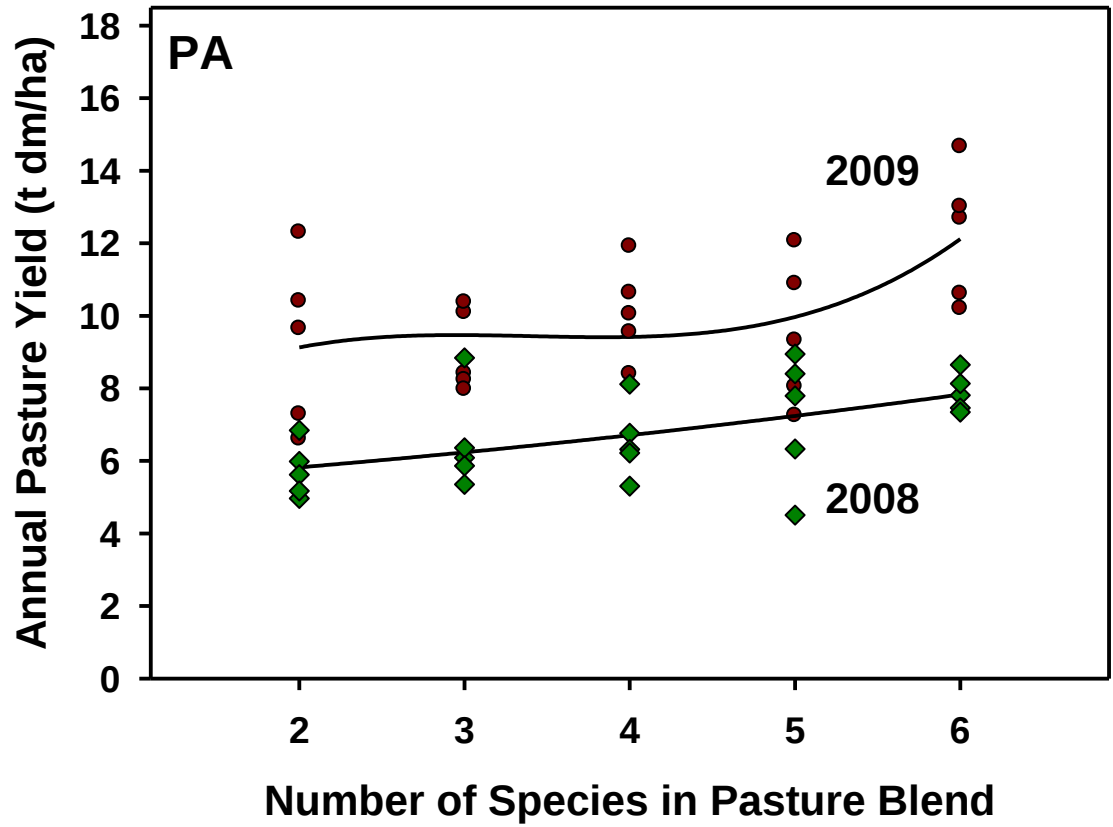
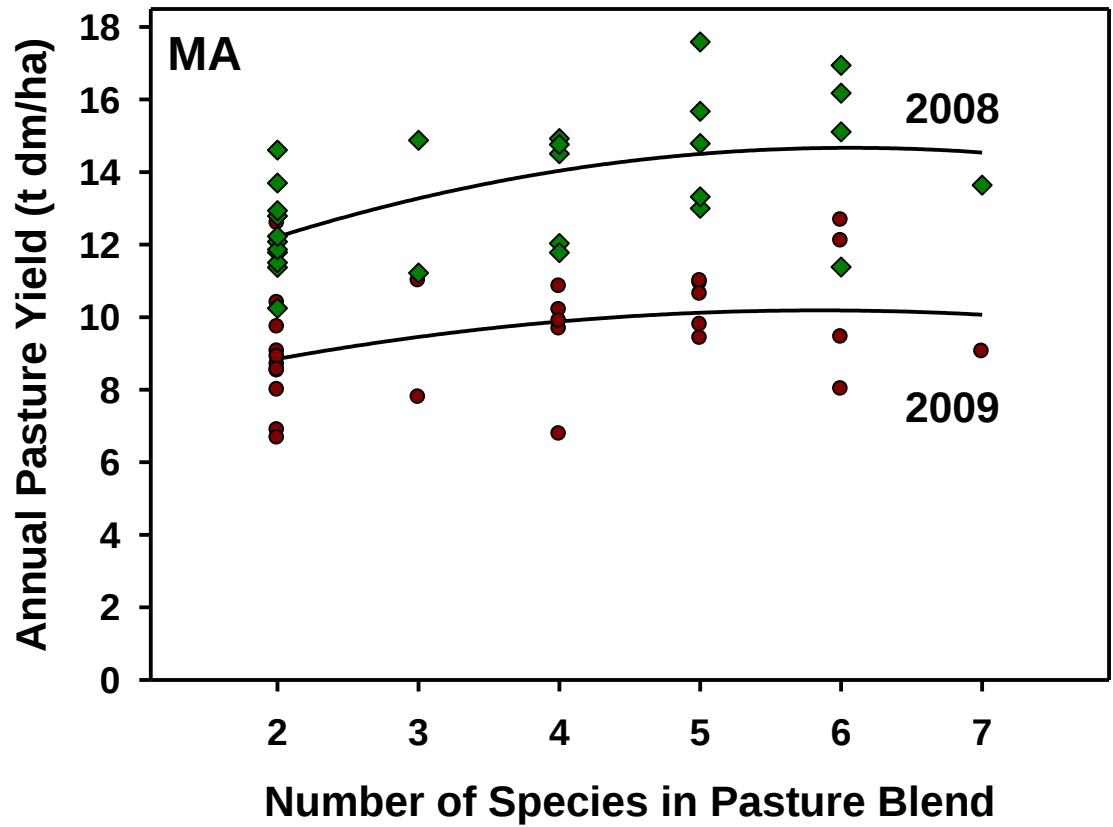
AgriCulver	All-Weather Mix (14, 4)
AgriCulver	Graze Master Mix (15, 4)
AgriCulver	Lowland Mix (18, 5)
AgriCulver	Milk Master Plus Mix (16, 2+)
AgriCulver	Renovator Mix (17, 3)
AMPAC Seed Co	Multi-Purpose Plus Mixture (8, 7)
Doebler's	DMX-D dairy mix (1, 3)
Doebler's	DMX-P pasture mix (2, 6)
King's Agriseeds	Creek Grazing mix (6, 6)
King's Agriseeds	Dairy Plus (3, 4)
King's Agriseeds	Greenfast (4, 6)
King's Agriseeds	Haymaster (5, 4)
King's Agriseeds	King's Grazing mix (7, 5)
Farm Science Genetics	Pro Beef Mix (12, 6)
Farm Science Genetics	Pro Dairy (10, 5)
Farm Science Genetics	Pro Horse (11, 5)
Farm Science Genetics	Range Master (13, 6)
Seed Solutions	Triple Crown (9, 5)

Two species mixes were seeded with Alice white clover and orchardgrass or perennial ryegrass with treatment number.

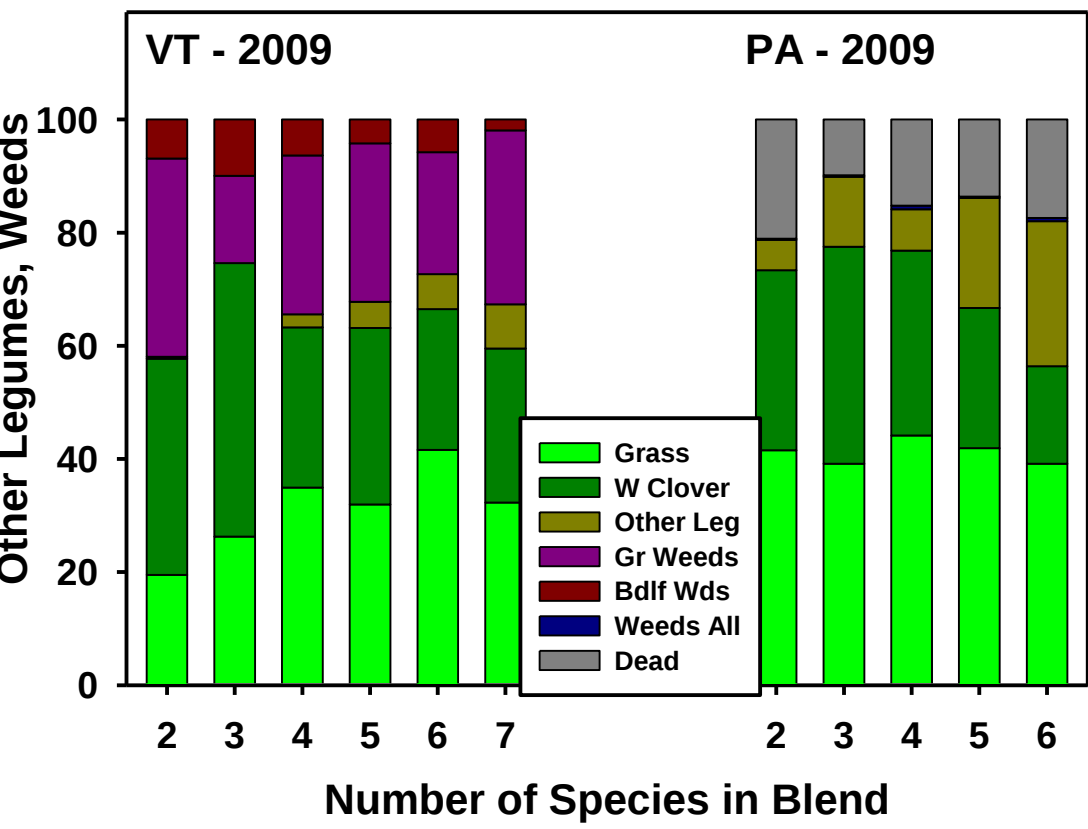
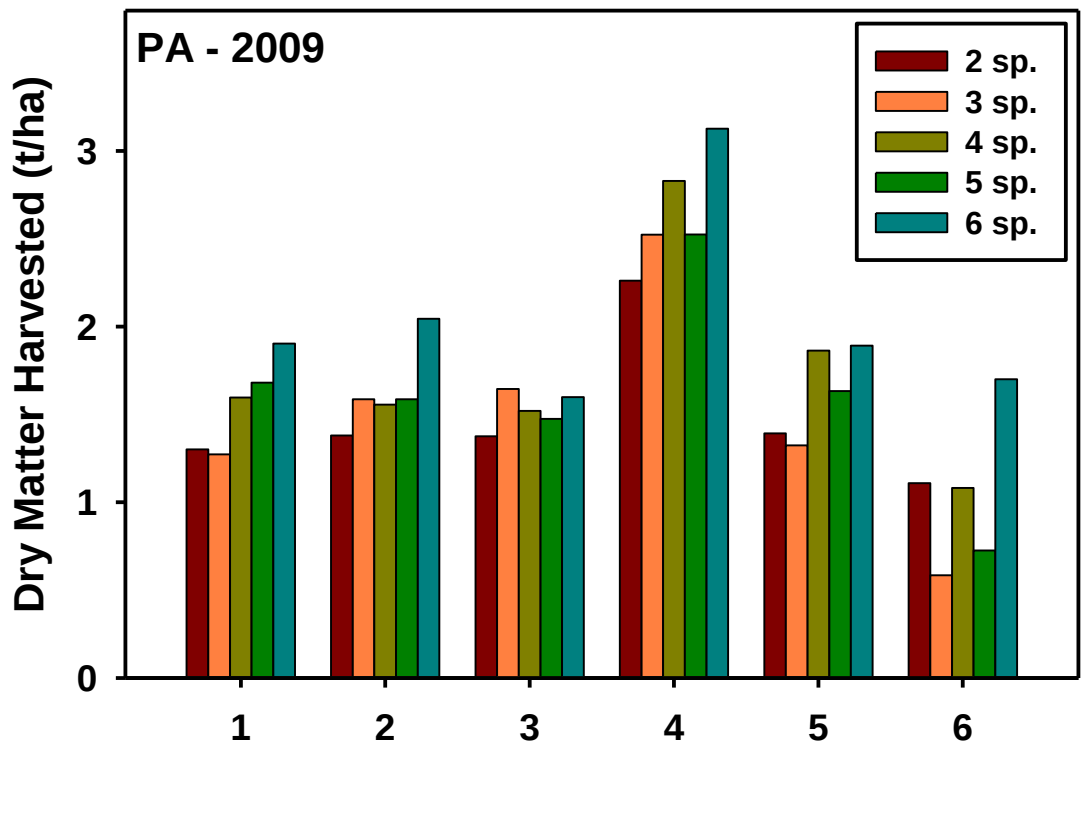
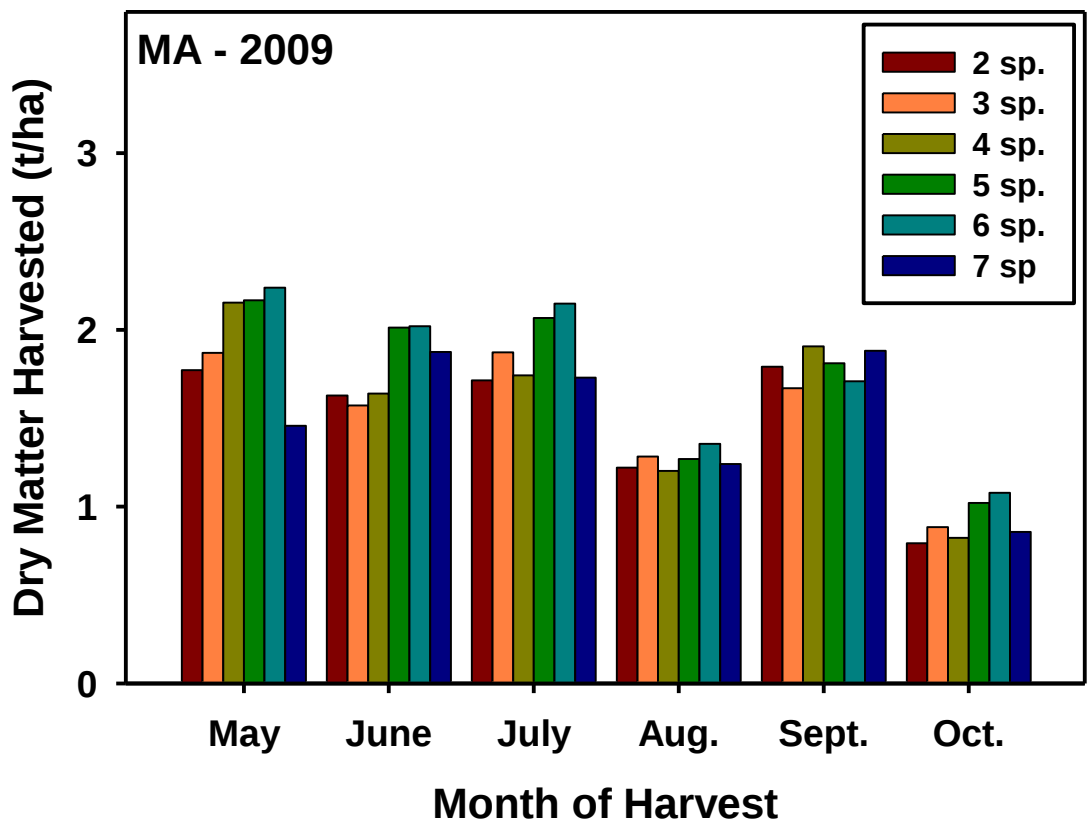
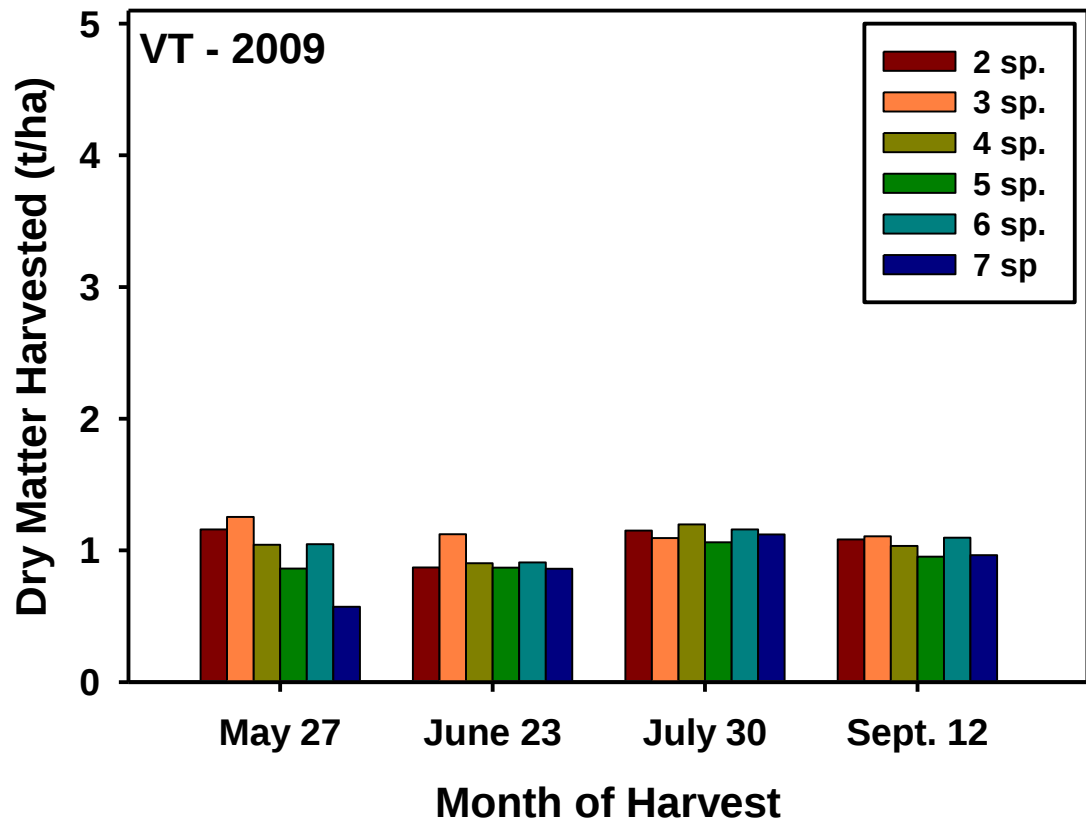
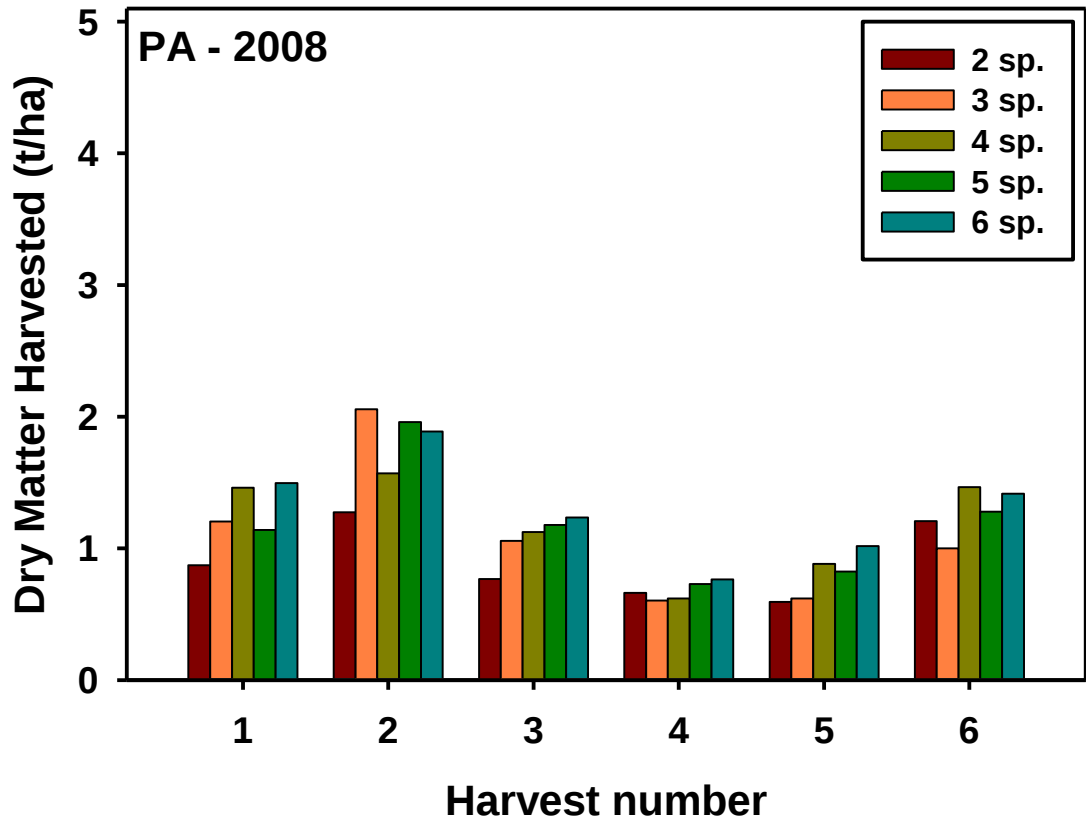
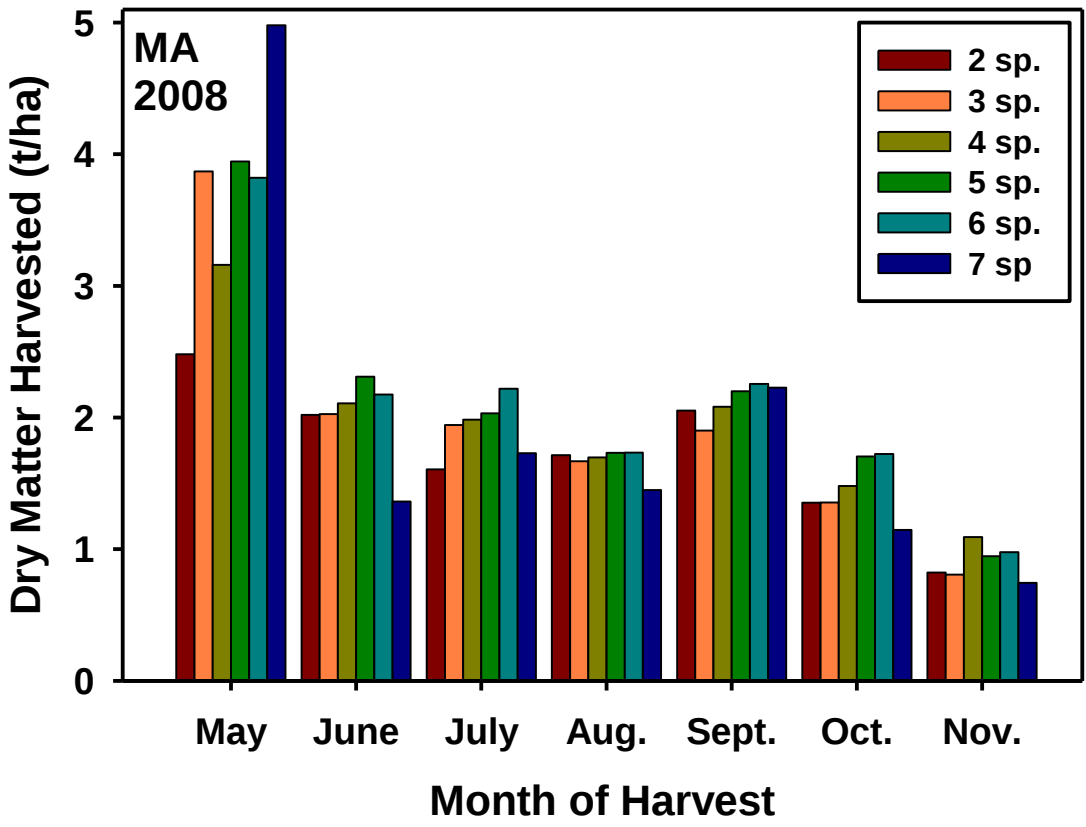
<i>Orchardgrasses:</i>	AMPAC Seed Co	Tekapo (19),
King's Agriseeds	Sparta (20)	Barenbrug
Doebler's	LG 31 (27)	Farm Sci. Genetics
<i>Perennial Ryegrasses:</i>	AMPAC Seed Co	Tonga (21)
DFL International	Gariboldi (23)	King's Agriseeds
King's Agriseeds	Tivoli (25)	King's Agriseeds

In PA blends 19-25 are specialized 2 specie custom mixes different from Massachusetts and in VT festulolium replaced ryegrass.

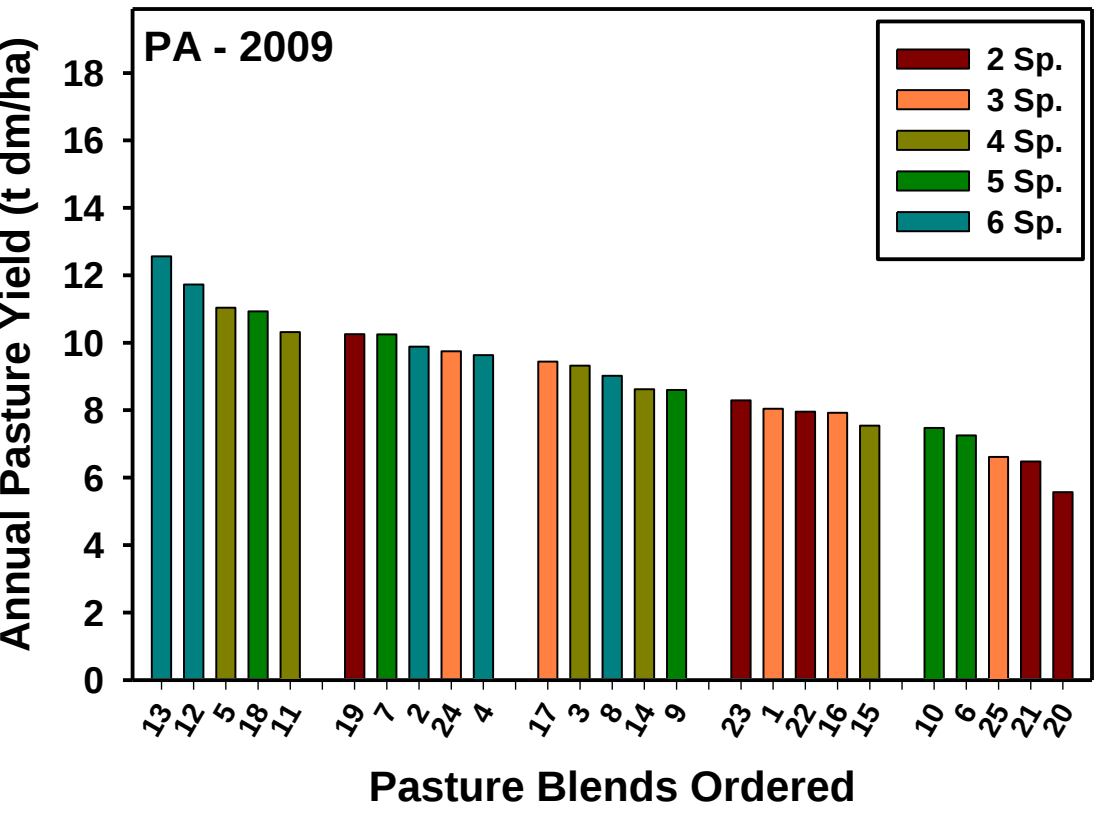
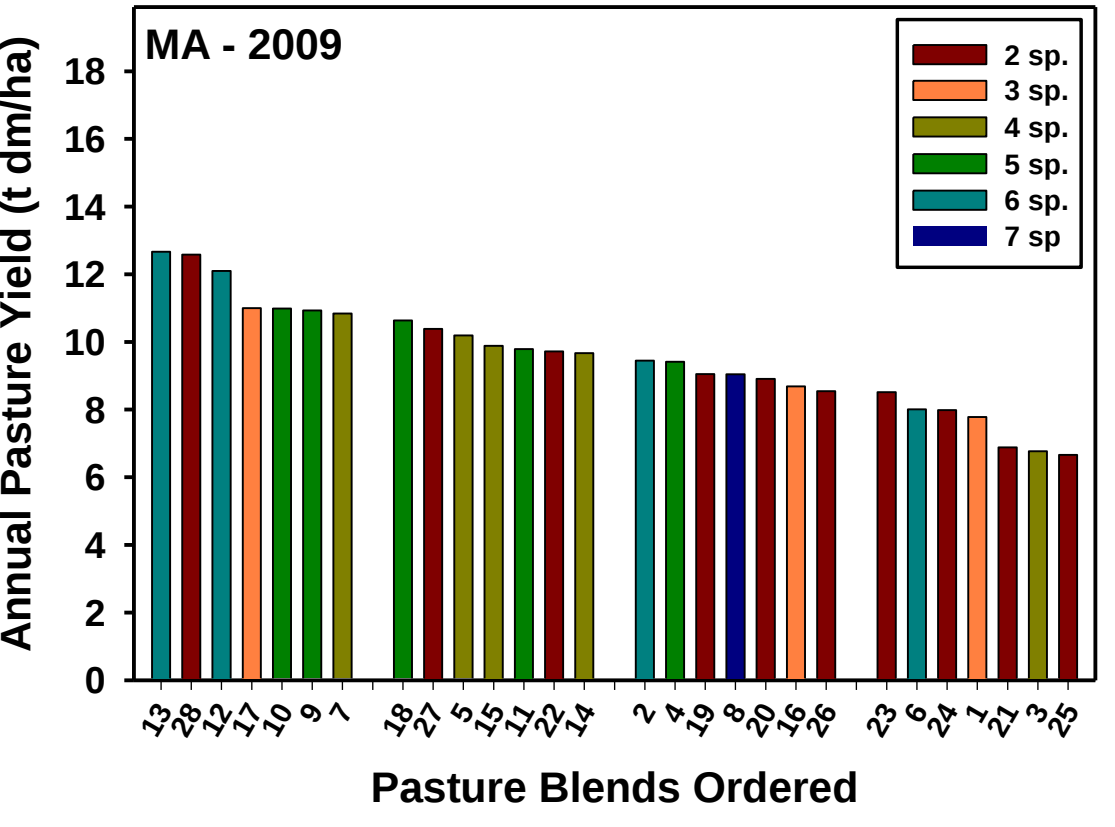
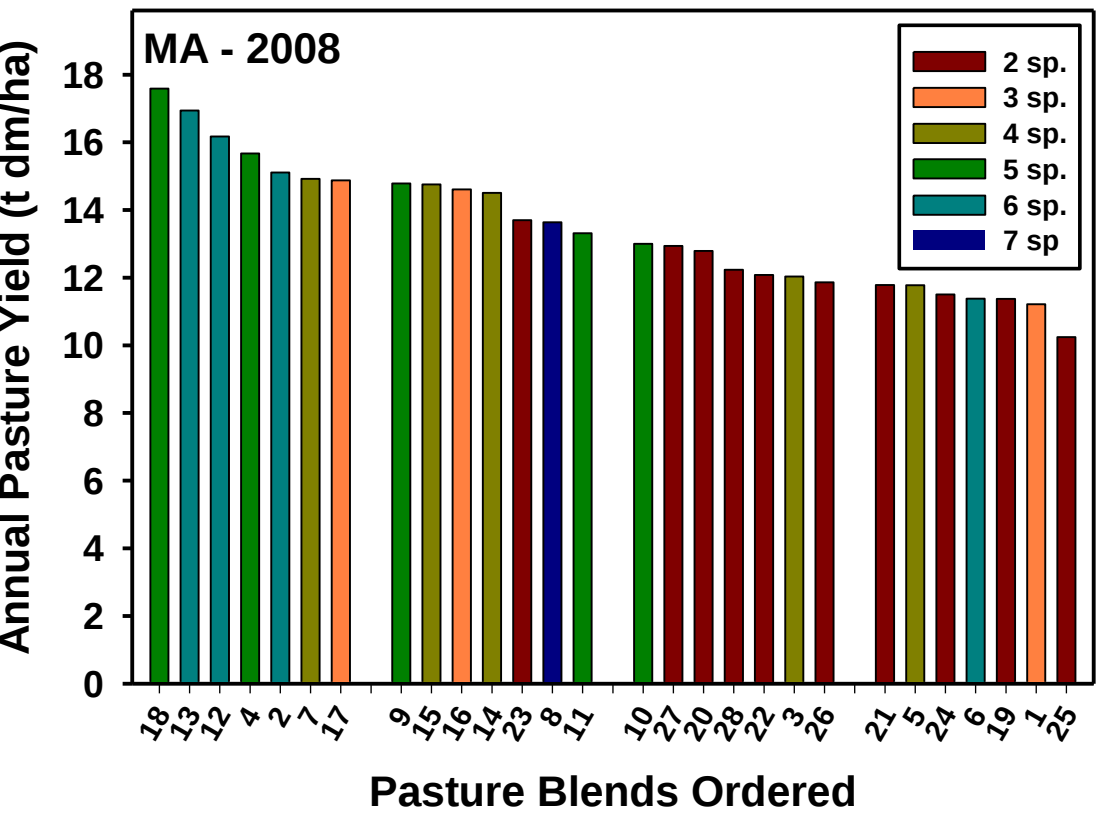
Total annual yields for MA, PA, and VT



Yields at each harvest for number of specie groups for MA, PA, and VT in 2008 and 2009



Annual yields ranked for MA and PA



- Pasture yield varied between the two years and among the three locations.
- Yields in 2008 were higher in Massachusetts while in Pennsylvania the yields in 2009 were higher.
- Probably related to better growing conditions in 2008 when 7 grazing times were possible before freezing conditions while in 2009. Both years were wetter than average in the northeast.
- Yields and number of grazing periods were much lower in the upland location in Vermont.
- Festulolium initially dominated mixtures when present the first year but did not persist after the first year at three all sites, and Alaska brome did not persist after the first year in Pennsylvania.

- Two mixtures were ranked within the top 3 for highest yield in Massachusetts and Pennsylvania.
- Most often blends including orchardgrass in Massachusetts, and red clover, perennial ryegrass, orchardgrass, or tall fescue in Pennsylvania, and with more than 2 species had greater yields.
- Perennial ryegrass in Massachusetts and Vermont also suffered some winter damage reducing yield in the second production year. Vermont plots contained significant amounts of weeds.
- Species that included small amounts of species in mixtures (e.g. > 10%, such as trefoil, timothy, bluegrass) did not establish enough plants to contribute significantly to forage yield.