2012 Pasture Measurement Project Summary

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Introduction

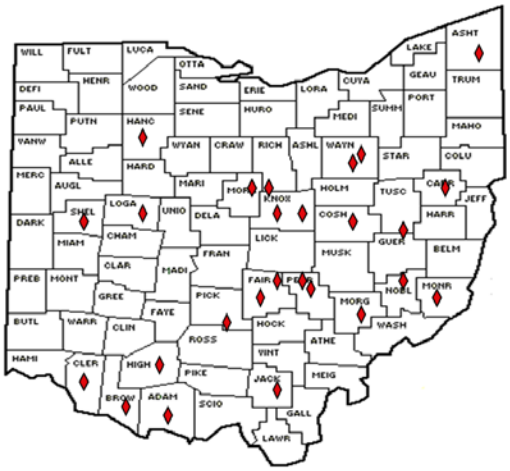
According to the 2007 Census of Agriculture there are 42,385 farms using 1,674,776 acres of pasture land in Ohio. Objective information on how pastures perform throughout the growing season is useful to manage this feed resource.

Objective

To measure the average weekly growth rate of forages growing in rotationally managed pastures throughout Ohio.

Crop Year:	2012	Measurement start date:	March 11
Location:	See map	Measurement end date:	Nov.30

Figure 1. 2012 Pasture Measurement Cooperator Locations



Methods

The project involves taking total above ground forage mass measurements weekly on farms across Ohio. The pastures measured contain typical forages found in Ohio pasture fields, but measurement of tall weeds was avoided. Management of the pasture fields including when to graze, clip or fertilize was up to the cooperating farmer. These farmers measured the same pasture field every week using a commercially available rising plate meter (Jenquip) and reported the measurement. Measurements were taken during the grazing season, and before and after grazing or clipping the field. On any given measurement date, at least 30 measurements were taken in each field to determine its average pasture mass. A multiplier was developed from the relationship of the pasture meter reading to pasture mass determined by hand clipping samples, drying then weighing the dry sample and regressing the dry mass on the corresponding rising plate meter reading for each sample. The average multiplier (slope of the line with an

intercept forced through 0) from this process was determined to be 107.4, so plate meter readings were multiplied by 107.4 to estimate pounds of dry matter (DM) per acre. Growth was calculated by dividing the difference in consecutive measurements by the days between measurements. Losses of dry matter due to grazing or clipping were excluded from the weekly averages.

Results

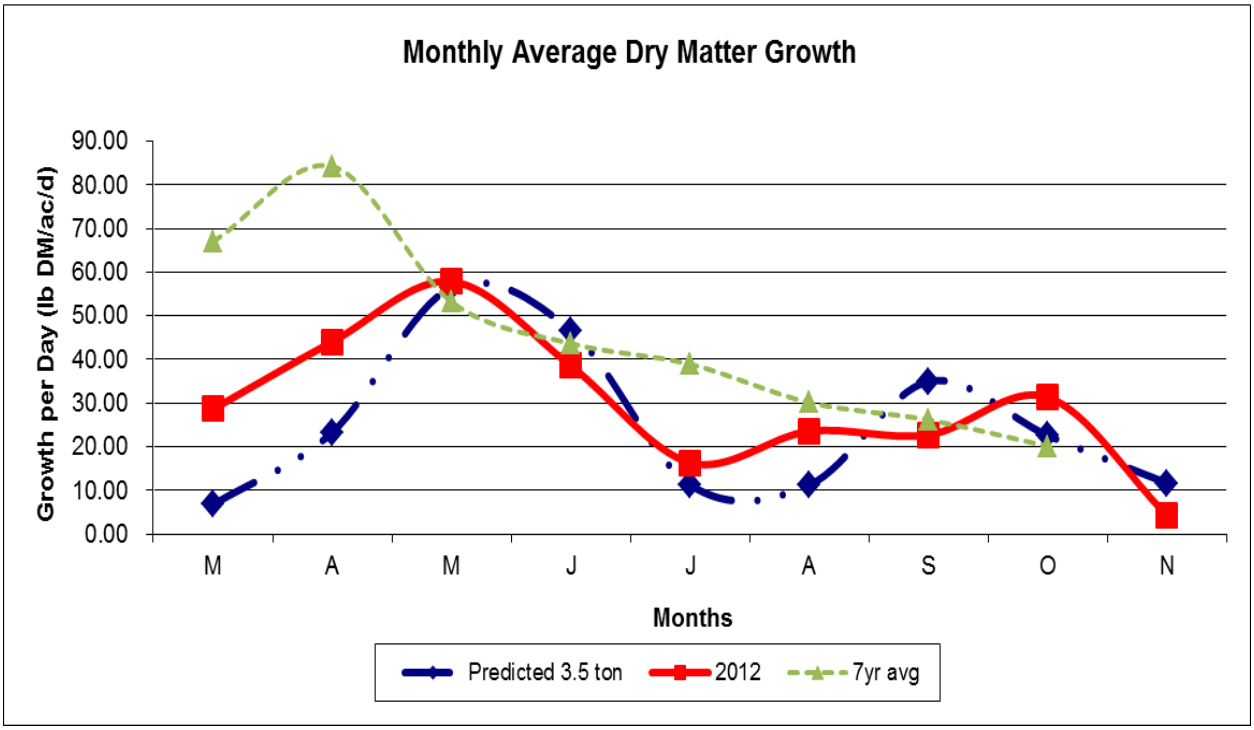
Week of the Year	Number of Pastures Reporting	Average Growth (lb DM/ac/day)	Standard Deviation
12	2	28.64	5.79
13	18	57.19	34.52
14	14	36.32	21.11
15	17	39.48	26.51
16	21	42.67	36.75
17	14	44.63	29.71
18	25	57.29	51.81
19	35	62.71	35.90
20	22	54.92	35.32
21	16	56.44	36.70
22	25	50.58	26.87
23	20	38.30	25.30
24	19	34.58	29.96
25	16	30.78	24.21
26	13	19.69	19.71
27	21	21.22	19.25
28	27	18.85	21.07
29	29	5.71	9.89
30	30	15.99	29.61
31	37	18.49	23.94
32	34	25.79	36.23
33	28	32.52	33.13
34	31	25.08	30.51
35	28	15.11	27.16
36	31	17.71	22.20
37	28	29.11	27.05
38	22	29.00	21.02
39	26	34.37	24.67
40	28	23.16	20.11
41	14	35.84	33.95
42	8	32.16	25.75
43	12	22.87	20.26
44	6	3.52	5.80
47	2	1.79	1.41
48	2	9.99	4.85

Summary

The rate of growth of cool season forages is known to vary over the growing season, usually following a bimodal pattern of increasing growth rate in the spring, followed by declining growth during the summer and then increasing slightly again in early autumn. This bimodal growth pattern is represented in Figure 2 as the 3.5 ton yearly production level based on the seasonal yield distribution reported in the Ohio Agronomy Guide. Many times in planning grazing systems the annual production number of 3.5 tons of DM produced per acre is used as an estimate. Figure 2. compares the planning values with the monthly averages measured in pastures in 2012 and the seven year average for the project. During 2012, the observed forage production per day was similar to the expected average 3.5 ton yield pattern reported in the Ohio Agronomy Guide. All of the fields measured were managed under a rotational grazing system. The difference between the observed and the expected curves was not as large in 2012 as in years past (the dashed line). The expected bimodal production was almost apparent in the on-farm results measured during 2012.

This information is useful to help with feed budgeting. Although the growth curve in 2012 was similar to the expected pattern, early spring and mid-summer growth rates were higher than expected. Above average rainfall during those periods may be the reason for the greater than expected growth. Having this information in real time would have allowed producers to make adjustments to stocking density, paddock size, or length or grazing period to take advantage that situation. Supplemental feed needs and excess available for harvesting and storage also need could have been adjusted. For example, it is possible that more area could have been harvested as hay if stocking rate was not changed to take advantage of the greater than expected growth.

Figure 2. 2012 Monthly average growth compared to 3.5 ton per acre planning average and project average.



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