

## Growth Curve Study for Anatone Bluebunch Wheatgrass

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### Introduction

Land managers need to know and understand the phenology and forage production characteristics of different rangeland grasses to better manage grazing practices. The Aberdeen Plant Materials Center (PMC) initiated a growth curve development study in 2006 to create growth curve information for commonly grown rangeland species. Growth curves can be used as a tool to help adjust grazing management to protect and enhance rangeland values. For the first season of the study, it was decided to begin with a single species, bluebunch wheatgrass (*Pseudoroegneria spicata* Pursh [A. Löve]), and to use 'Anatone' germplasm as a representative variety.

### Methods

On April 19, 2006 twenty Anatone plants were randomly chosen, flagged and labeled 1 to 20 at the PMC grass display nursery for sampling. All plants were planted and established in 2002 and have been grown and maintained under irrigated conditions designed to approximate 12 inches or less annual precipitation.

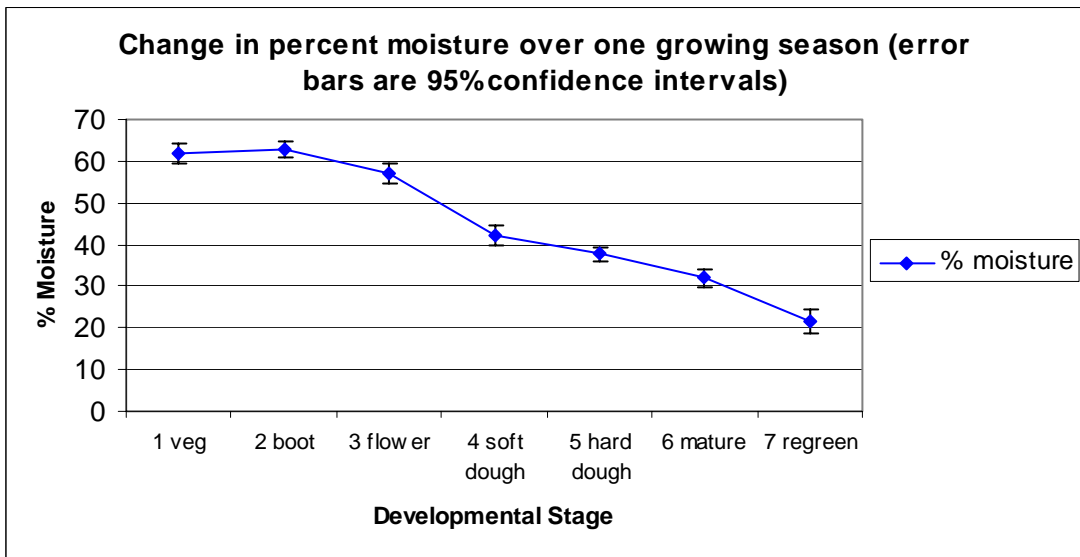
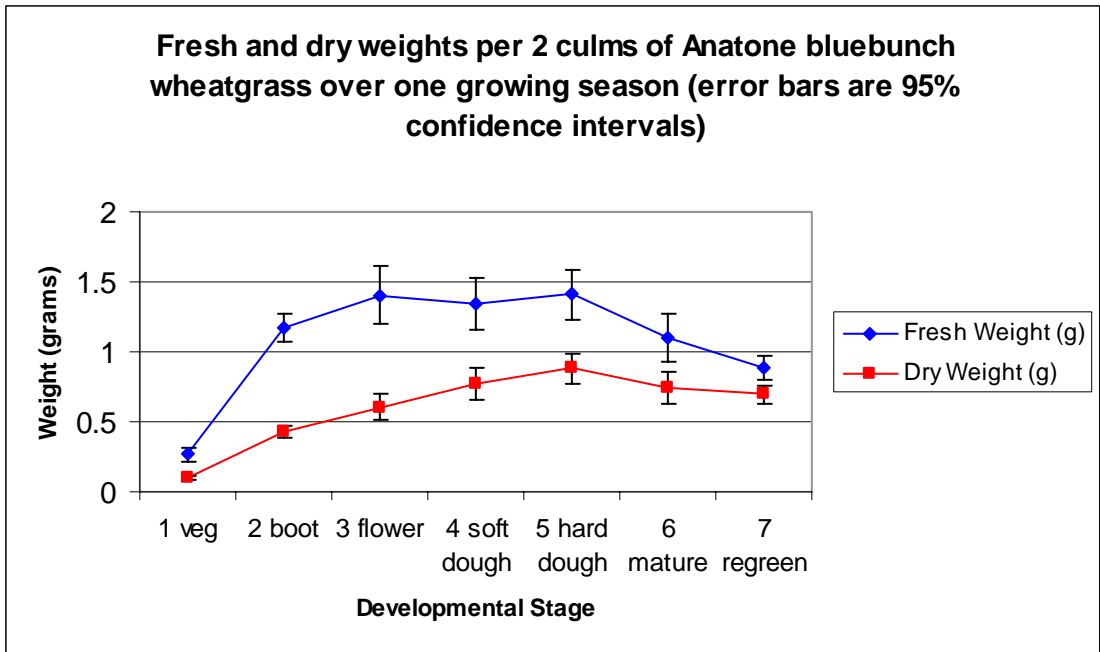
Two culms were cut from each plant at each of seven easily recognizable growth stages: vegetative, boot, flower, soft dough, hard dough, seed mature and fall greenup (or regreen). Samples were harvested as close to ground level as possible with scissors and transported in paper sacks. Samples were then weighed and fresh weights recorded. The first sample was then micro waved at 30 second intervals until weight change was no longer detectable or plants started to burn. Typically this ranged from 1 to 2 minutes. The total length of time required to dry sample 1 was then used to dry each of the remaining 19 samples. Dry weights were recorded and percent moisture extrapolated from those data.

Developmental Stage	Sampling Date
Vegetative	19-Apr
Boot	22-May
Flower	5-Jun
Soft dough	20-Jun
Hard dough	28-Jun
Mature seed	13-Jul
Regreen	27-Sep

### Results

Plants grew until they reached flowering stage then began to put more energy into producing seed instead of growing. Once seeds reach hard dough the plants started to dry out. The observed decrease in dry weight from hard dough to mature seed is probably the result of some seed shatter. Also, there is probably a point between stages 6 and 7 (mature seed and regreen) where

percent moisture is at its lowest; this is why we don't see an increase in percent moisture at the end. However, fall greenup mostly applies to a flush of new growth of culms and leaves, and not from rejuvenating or hydrating mature culms.



In 2007 the PMC plans to produce similar growth curves for the following species: Snake River wheatgrass (*Elymus wawawaiensis* J. Carlson & Barkworth), Idaho fescue (*Festuca idahoensis* Elmer), Sandberg bluegrass (*Poa secunda* J. Presl.) and basin wildrye (*Leymus cinereus* [Scribn. & Merr.] A. Löve).