



## **2015 SUMMER ANNUAL FORAGE MIXTURES TRIAL**

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In 2015, the University of Vermont Extension Northwest Crops and Soils Program evaluated yield and quality of six summer annual forage species and five mixtures at Borderview Research Farm in Alburgh, VT. In the Northeast, cool season grasses dominate the pastures and hay meadows farmers rely on throughout the season. With the onset of hot summer weather, these grasses enter dormancy and slow in production leading to what is generally referred to as the “summer slump.” Given this decline in productivity, organic producers still must provide animals with 30% of their dry matter intake (DMI) from pasture over at least 120 days of the year. These constraints, in combination with variable weather, can make it very difficult to produce adequate forage from these cool season perennial grasses alone. Summer annual species thrive in hot weather and can be grazed to help reach the pasture requirement or can be used as stored feed to supplement other sources. Recently, there has been a growing interest in utilizing multiple species to further maximize forage yield and quality. We compared six summer annual species alone and in three- and five-species mixtures to evaluate potential differences in forage production and quality. While the information presented can begin to describe the yield and quality performance of these forage mixtures in this region, it is important to note that the data represent results from only one season and one location.

### **MATERIALS AND METHODS**

In 2015, annual forage species and mixtures were evaluated at Borderview Research Farm in Alburgh, VT. The plot design was a randomized complete block with four replications. Treatments were 11 forage mixtures/species evaluated for forage yield and quality. Forage treatments and seeding rates are summarized in Table 1.

**Table 1. Summer annual forage species and mixtures evaluated in Alburgh, VT.**

Abbreviation
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M/ R/ V/ Cl/ Ch	Wonderleaf Millet	20	10
	Fria Annual Ryegrass	30	15
	AC Greenfix Chickling Vetch	60	30
	Berseem Clover	15	8

fiber analysis system separates forages into two parts: cell contents, which include sugars, starches, proteins, non-protein nitrogen, fats and other highly digestible compounds; and the less digestible components found in the fiber fraction. The total fiber content of forage is contained in the neutral detergent fiber (NDF). Chemically, this fraction includes cellulose, hemicellulose, and lignin. Because of these chemical components and their association with the bulkiness of feeds, NDF is closely related to feed intake and rumen fill in cows. Recently, forage testing laboratories have begun to evaluate forages for NDF digestibility (NDFD). Evaluation of forages and other feedstuffs for NDFD is being conducted to aid prediction of feed energy content and animal performance. Research has demonstrated that lactating dairy cows will eat more dry matter and produce more milk when fed forages with optimum NDFD. Forages with increased NDFD will result in higher energy values and, perhaps more importantly, increased forage intakes. Forage NDFD can range from 20 – 80% NDF.

Yield data and stand characteristics were analyzed using mixed model analysis using the mixed procedure of SAS (SAS Institute, 1999). Replications within trials were treated as random effects, and mixtures were treated as fixed. Treatment mean comparisons were made using the Least Significant Difference (LSD) procedure when the F-test was considered significant ( $p < 0.10$ ).

**Table 1. Seasonal weather data<sup>1</sup> collected in Alburgh, VT, 2015.**

<b>Alburgh, VT</b>	<b>June</b>	<b>July</b>	<b>August</b>
Average temperature (°F)	63.1	70.0	69.7
Departure from normal	-2.7		





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