

**Hairy Vetch Adaptation Trial 2006-2007**  
**Study Number: IDPMC-0613-CP**  
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### **Introduction**

In 2006 the Aberdeen Plant Materials Center (PMC) entered into agreement with Dr. Thomas Devine, ARS Beltsville, MD to investigate the winter hardiness attributes of five accessions of hairy vetch (*Vicia villosa* Roth) at multiple PMCs in the northern region of the United States. Hairy vetch is a legume used as a cover crop by organic farmers in the northern states. In these applications the plants are seeded in late summer and run over with a roller the following spring, at bloom or shortly thereafter, to crimp and thereby kill the plants leaving mulch on the soil surface. The farmer then no-tills the next crop directly into the hairy vetch mulch (sometimes crimping and planting is done in one operation). The vetch provides nitrogen, controls weeds and helps retain moisture in the soil.

### **Materials and methods**

The five hairy vetch accessions investigated were: AUEC, Groff, B-35, K-12 and Nebraska Common. Seed was supplied by Dr. Devine. The trial was located at the PMC home farm 2 miles north of Aberdeen, Idaho. Soil at the site is a Declo silt loam with pH of 7.4 to 8.4. Average annual precipitation is 9.39 inches. The site was disked and smoothed prior to planting. Experimental design was a randomized complete block with three replications. Each plot consisted of a single row, 10 feet long. Rows were spaced 36 inches apart.

The experimental protocol provided by Dr. Devine included the application of a *Rhizobium* inoculant (Type C) to the seed prior to planting. A search was made for local suppliers of hairy vetch inoculant, but none were found. Because fall was progressing and temperatures were fast approaching the point where it would be too late to plant, it was decided by the PMC that the study could proceed without the use of inoculant. Planting occurred on September 6, 2006 with the use of a garden belt seeder. The seeder was calibrated to plant 6 seeds/ft or 60 seeds/plot. The plots received supplemental irrigation for establishment.

The plots were evaluated for total number of living seedlings, once in the fall prior to winter dormancy on October 27, 2006 and again in the spring after plants had begun to actively grow on April 5, 2007 (figure 1). Survival was recorded as the number of living plants at the time of the second

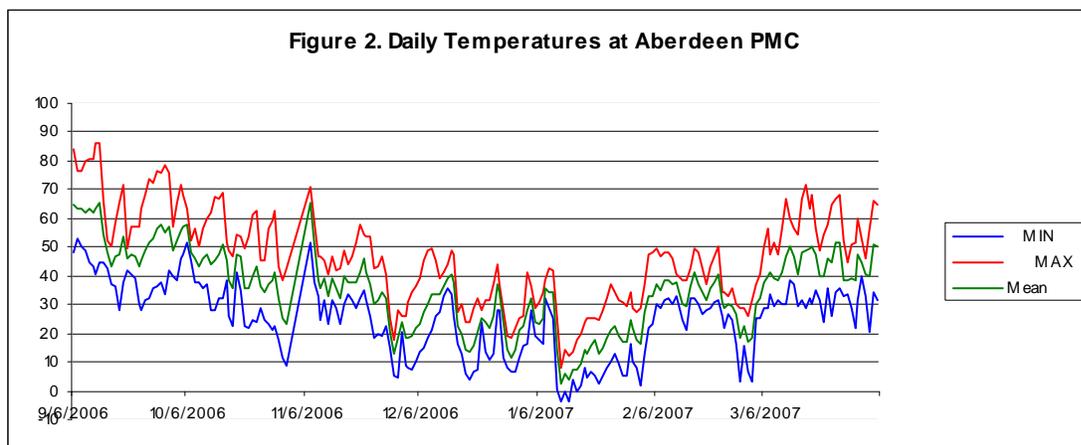


**Figure 1. Hairy vetch seedling at time of spring evaluation.**

evaluation divided by the number of plants at the first evaluation. Data were analyzed with Statistix 8 analytical software and subjected to an analysis of variance (ANOVA), and significant means were separated with a Tukey's HSD Test with a significance level of  $p \leq 0.05$ .

## Weather information

Temperatures at the time of planting averaged into the sixties but dropped in the following days and weeks to the fifties (figure 2). The first sub-freezing temperature occurred on September 18. Night time freezing temperatures took place throughout most of the trial. The lowest temperatures were achieved in mid-January where temperatures dropped to sub-zero and reached as low as -4° F.



## Results and discussion

Nebraska Common had significantly greater survival than all other accessions with a mean survival of 85% (table 1). The next best performers were Groffs (32%), K-12 (16%), B-35 (4%) and AUEC (3%). Nebraska Common also had a much smaller standard deviation than Groffs or K12 indicating a smaller range of variation between plots (figure 3). According to the Idaho portion of the study, Nebraska Common would appear to be the most cold-tolerant variety and may be suitable for use in the Intermountain West region and other northern states. However, additional plantings would need to be conducted to verify these findings. Data from the other PMCs are also needed to corroborate these results. Raw data and a copy of this report will be sent to Dr. Devine for compilation with results from other investigators.

**Table 1. Over-winter survival of hairy vetch cultivars at the USDA-NRCS Plant Materials Center, Aberdeen, ID, 2007.**

Accession	% Survival
Nebraska	85 a
Groffs	32 b
K-12	16 b
B-35	4 b
AUEC	3 b

