2002 Progress Report
'Appar' and Native Blue Flax Comparison
Cooperative Study with Shrub Sciences Laboratory
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In 1980, the United States Department of Agriculture, Forest Service Shrub Sciences Laboratory, Provo, Utah and the USDA Natural Resources Conservation Service, Plant Materials Center, Aberdeen, Idaho cooperatively released 'Appar' blue flax. Appar is recommended as a component of a seed mix to provide diversity and beauty. It was originally identified as *Linum lewisii* but was later determined to be a naturalized introduced species from Europe. Appar is now recognized as *Linum perenne*. The Shrub Sciences Laboratory has been evaluating native blue flax collections and requested the PMC assist in a study to compare Appar to one of the more promising native collections.

On May 24, 2000 two rows each of Appar blue flax and Maple Grove Lewis flax G1 (generation 1) were seeded in field 15 at the PMC Home Farm. The rows are 84 feet long. Seed was planted with a Planet Junior seeder pulled by a tractor. The seeding rate was 25-30 pure live seeds (PLS) per foot and the rows are spaced 36 inches apart. During the establishment year, the Maple Grove accession had the best stand. On September 8, 2000 the plots were evaluated for percent stand, plant height, and vigor. Percent cover for Appar ranged from 40 – 45 percent and plants were 6 – 10 cm tall. The Maple Grove accession had a 65 – 75 percent stand and plants were 8 – 12 cm tall. Vigor for both accessions was good but the Maple Grove accession clearly had the best vigor.

Observations during the 2001 growing season indicated that the Maple Grove accession appeared to have a slightly better stand than Appar but overall plant health and vigor were equal. On June 1, both accessions were flowering. Appar had dark blue flowers and Maple Grove had light blue flowers. On July 2, the plots were observed for seed ripeness and both accessions were in the late milk to early dough stage. On July 24, sample plots were harvested from both accessions to compare seed yield and all Maple Grove plants were harvested for seed increase.

On May 8, 2002 the trial was evaluated for basal cover and plant height. Maple Grove had 67 percent basal cover and averaged 28 cm tall. Appar had 44 percent basal cover and averaged 31 cm tall. Appar has a dark green foliage color as compared to Maple Grove, which is pale green. On July 19, 2002 sample plots were harvested from both accessions to compare seed yield and all Maple Grove plants were harvested for seed increase.

Three, randomly located 10 foot row samples were harvested from each accession for yield comparison in 2001 and 2002. Seed was bagged, allowed to dry and then cleaned. The following table illustrates the yield comparison (pounds per acre) between Appar and Maple Grove from 2 growing seasons:

	Maple Grove		Appar	
Harvest year	2001	2002	2001	2002
Sample 1	568	377	421	145
Sample 2	565	450	664	697
Sample 3	571	857	761	711
Mean	568	561	615	518

This data shows that during 2001, Maple Grove yielded 92 percent of what Appar produced in this comparison. In 2002, Maple Grove yielded 108 percent of what Appar produced. It is likely that Maple Grove produced more seed in 2002 because of the decreased basal cover (i.e. fewer plants) of Appar. Long-term yield data for Appar is 720 pounds per acre. Comparing this yield data of Maple Grove to the long-term data of Appar, Maple Grove may be able to yield 70 - 90 percent of Appar.

In 2001, the total harvest of Maple Grove (including the sample data) yielded 4.173 pounds of seed. This is equivalent to 361 pounds of seed per acre, which is 50 percent of the long-term yield of Appar. In 2002, the total harvest of Maple Grove (including the sample data) yielded 415 pounds of seed per acre, which is 57 percent of the long-term yield of Appar.

Bushel weight of the Maple Grove seed harvested in 2001 and 2002 was 41 and 40 pounds per bushel respectively. The long-term bushel weight of Appar is 47.5 pounds.

Maple Grove seed that was harvested in 2001 was seeded in field 3 at the PMC Home Farm on May 31, 2002 and has been entered into certification with the Idaho Crop Improvement Association. The stand established well and should produce a seed crop in 2003. It is anticipated that the PMC and the Forest Service Shrub Sciences Laboratory will release Maple Grove as selected class germplasm to be available to seed growers in early 2004.