

'Alborea': A new cultigen developed from hybrids of Alfalfa X *M. arborea*.

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The first hybrids were obtained 10 years ago, and have been used in various studies (see references below). Hybrids and hybrid derivatives have been used in two mating strategies: 1. Crossing with alfalfa for breeding purposes, and 2. Intercrossing hybrids in a partial diallel to pyramid selected *M. arborea* traits, and produce new *Medicago* lines. As we progressed through generations of breeding and selection, it became clear that the material needed an identifying name for ease of recording and reporting. Alfalfa and *M. arborea* were abbreviated and combined for the name Alborea.

Alborea is a generic name for the cultigen, and a suffix is added to identify lines bred for special characteristics. Thus, Alborea-YS stands for Yellow-flowered Synthetic, and Alborea-P/Y indicates variegated flower color due to co-expression of Purple from alfalfa, and Yellow from *M. arborea*. Other lines in development include 'arborea leaf', 'winter active', and various morphological traits such as woodiness and shrubiness.

Alborea-YS was completed first, and field evaluations will be reported as they become available. In the meantime, the following was observed in Madison in 2014, at the UW-West Madison Research Farm, and at our home garden two kilometers away. The biomass yield of Alborea in two cuttings in the seedling year, in a microplot test with three replications on the UW farm, was slightly better than the checks, including non-dormant Sequel (AU), and dormant Vernal (WI). Recovery after cutting was less than Sequel and more than Vernal.

Alborea seed production was better than expected, and estimated to be about 60% of regular alfalfa. Seed size of individual plants varies from slightly larger than alfalfa to slightly smaller than *M. arborea*. Seed yield and seed size are being increased by selection. In the glasshouse and field, some Alborea selections have demonstrated improved seedling vigour over the alfalfa checks.

Since the 2013 paper in PLANTS cited below, new hybrids of alfalfa X *M. arborea* have been produced in Queensland and Wisconsin, involving new *M. arborea* parents. Thus, the genetic base of introgressions from *M. arborea* is being broadened, and there is new material in the breeding "pipeline". Also, we are continuing to "pyramid" *M. arborea* traits in new Alborea lines. The traits include greater capacity to compete with C4 grasses, increased biomass production and persistence under grazing by sheep. References follow on the development and field evaluation of these materials.

## References

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