

Grape Breeding Update – University of Arkansas SERA IEG-14 Report

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Table grape improvement continues to be the primary focus of the Arkansas program. Annual crosses continue to be made, numbering 17 -24 per year. Major objectives include seedlessness, large fruit size, a range of flavors, mostly non-slipskin with crisp texture, fruit cracking resistance, and adapted, hardy plants for the region.

Seedlings planted in recent years include 4,473 in 2001, 4,245 in 2002, 991 in 2003 and 824 in 2004. The reduced numbers recently were largely due to hail damage near the time of crossing. Selection numbers per year average about 20. Currently there are approximately 184 selections in the program.

Since the program was begun by Jim Moore in 1964, approximately 250,000 to 300,000 seedlings have been evaluated resulting in 1,882 selections. The cultivars Venus (1977), Reliance (1983), Mars (1985), Saturn (1989), Sunbelt (1995), Jupiter (1999) and Neptune (1999) have been released from the program.

Genetically, one of the more significant achievements has been greatly increased berry size (with no Gibberellic Acid) with small to no seed traces; this being one of the major challenges in seedless breeding. This has been achieved largely using seeded x seedless crosses also. Crisp textures coupled with a range of flavors have been achieved, blending the American fruitiness with the non-slipskin texture that consumers are familiar with. Shape variation has also been achieved, from round to oblong to oval to very elongated shapes. Challenges very difficult to meet include fruit cracking resistance and disease resistance. Both of these traits are more difficult to achieve as one increases the quality (including reduced skin thickness). Pierce's Disease screening is not done in the program, and no Arkansas cultivars are intended to have PD resistance.

Wine grape breeding has been a lesser effort in the program. Approximately 80 selections were made over the years for wine, with the goal of combining quality and adaptation. This has resulted in about 12 selections remaining in the program with the best of these being provided for Arkansas wineries to test and use in small lot wine evaluations. Drs. Justin Morris, Gary Main, and Renee Threlfall have conducted all enological processes and organoleptic evaluations of these. It is hoped that one or more of these selections will find a place to help the regional wine industry.

Future plans include continuing the breeding effort, albeit at a reduced effort from that over the last 40 years. It is disappointing that eastern table grape production has not significantly increased, and at least in Arkansas, has decreased, in recent years. Continued improvement of the germplasm, coupled with a broader use of the material in testing and breeding in the U.S and world, is the goal.