

Development and Commercialization of the Rotatable Cross-Arm Trellis

The nominees developed a trellis system for the management of trailing and erect blackberries called the USDA rotatable cross-arm (RCA) trellis system. Its unique features permit vegetative primocane and fruiting floricanes to be spatially separated and position essentially all fruit on one side of the plant. The RCA trellis system has improved blackberry yield and fruit harvestability. The unique features of the RCA trellis and cane training system include orienting the lateral canes in a horizontal plane during the bloom period, making it possible for all flower cluster development to occur above the cane support system. Rotating the cross-arm after flowering in spring positioned the fruiting laterals under the trellis support wires and lateral canes. In this position, the berries are easily hand-picked or machine harvested with much less bruise damage and improved fresh market quality. The use of the RCA trellis to position canes close to the ground which allows floating row cover to be applied over the canes during winter reduces damage from cold temperatures. This has allowed growers in the Midwest to produce blackberries with consistent yearly yields. Availability of local blackberries is practically non-existent in many northern regions, despite the high demand for the fruit because canes are usually killed by low winter temperatures.

The nominees have published three scientific papers, given 12 talks at scientific and regional industry meetings, and written five articles for grower magazines on RCA trellis and cane training techniques. The nominees have communicated with extension specialists and farm advisors in 17 states and in several foreign countries regarding the USDA RCA trellis system and its utility in blackberry production.

Research agreements were established with the University of Maine and the University of New Hampshire to evaluate winter protection techniques. ARS provided considerable amount of information to Trellis Growing Systems (TGS) LLC, in Ft. Wayne, IN that was used in the preparation of TGS's grant proposal for USDA CSREES SBIR Phase 1 Program. ARS established an agreement with TGS.

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