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## Cultural Practices for Melissa Table Grapes

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Melissa is a mid- to late-mid season white seedless table grape developed by David Ramming and Ron Tarailo of the USDA-ARS in Fresno, CA. Formerly known and tested as USDA selection #C45-59, this cultivar was released in the spring of 1999. The cultivar resulted from the cross of Crimson Seedless and B40-208, an unreleased USDA selection producing white, seedless berries with muscat flavor. The cultivar produces large, white berries that ripen in late August to mid-September, just after Thompson Seedless. Clusters are conical with small to medium shoulders, and generally less compact than Thompson Seedless. Berry shape is generally cylindrical or similar to table Thompson Seedless, although berry size may be greater with cultural practices. The berries are firm and have a slight floral or muscat character when fully mature. The commercial appeal of Melissa rests on its large berry size, late maturity and excellent eating quality. Nursery estimates suggest that approximately 500 acres of this cultivar will be planted in California by the end of 2000.

### Site Selection and Planting

Melissa is highly vigorous when planted on its own roots. No information on rootstock adaptation is available, but rootstocks normally used for table grapes in the San Joaquin Valley (Harmony or Freedom) are currently the best choices. Vines are extremely vigorous when planted in deep, fertile

soils. Excessive nitrogen fertilization and irrigation should be avoided. Vines are typically spaced 7' to 8' between vines and 12' between rows.

### Training and Trellising Systems

Initial observations indicated that Melissa required cane pruning for adequate yields. However, similar to Crimson Seedless, it may also be possible to obtain adequate yields with quadrilateral cordon training and spur pruning. We are currently conducting a trial at the Kearney Agricultural Center to compare productivity and fruit quality under these systems.

At present it may be best to head train and cane prune vines, while reserving the option to retrain the vines to quadrilateral cordons in the future in order to facilitate spur pruning. Due to the cultivar's high vigor, a large, expansive trellis such as the open gable may be preferable to the standard "T" system. If the standard "T" trellis is used, quadrilateral cordon trained/spur pruned vines may offer several advantages compared to head trained/cane pruned vines (see the above discussion under Crimson Seedless).

With head training, 8 (standard trellis) to 12 canes (gable trellis) are typically retained per vine. Quadrilateral cordon trained vines typically carry 28 to 36, 2-bud spurs per vine (i.e., 7 to 9 spurs per cordon).

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## Productivity

Little information is available regarding commercial production potential. Over the past two seasons, production in our field trials has ranged between 400 and 700 boxes (22 lb.) per acre for vines trellised to the standard California “T” trellis (head trained/cane pruned). We expect yields to increase as the vines mature, and as more information regarding optimum management practices is developed. Yields may also be higher when more extensive trellising systems, such as the open gable, are used.

## Fruit and Crop Load Management

It may be necessary to reduce crop load in years of high bud fruitfulness. Due to the moderate size of the cluster, tipping is not necessary.

## Gibberellic Acid

**Berry thinning.** Our preliminary work suggests that approximately one gram of GA per acre, applied at approximately 80% to 90% bloom, is sufficient to reduce fruit set and increase berry length and weight. If combined with girdling at fruit set, this application does not reduce total or packable yield per vine. Effects of this treatment on return fruitfulness the following year are not well documented, but appear minimal. Higher rates of GA result in excessive berry thinning (straggly clusters) and unacceptable reductions in vine fruitfulness the following year.

**Berry sizing.** Our preliminary work suggests that 10 to 20 g GA/ac applied near berry set is effective for berry sizing. We believe that this cultivar is quite sensitive to GA, and that rates > 20 g/ac may reduce budbreak and return fruitfulness of cane pruned vines the year following their application. High rates of GA applied at fruit set also appear to increase berry shatter. We are currently evaluating the impact of berry sizing applications performed at fruit set and at fruit set + 2 weeks on return fruitfulness and fruit quality. Further work is needed

to evaluate GA berry sizing treatments, and these applications are not recommended at this time.

## Girdling

Trunk girdles applied at berry set (4-5 mm berry diameter) increase the berry weight and yield of Melissa 15% to 20%. Girdles applied at berry set also delay fruit maturity. Girdles applied at berry softening or veraison advance fruit maturity, but have no effect on berry size.

## Canopy Management

Canopy management practices, including shoot thinning, basal leaf removal and summer pruning, should be performed as with Thompson Seedless. Excessive sunlight exposure of clusters may lead to ambering or browning of the berry surface.

## Special Problems and Considerations

The primary questions regarding Melissa at this time concern its productivity. While berry size and eating quality were outstanding in both 1998 and 1999, yield potential was only moderate. This was due to low cluster numbers per vine (low bud fruitfulness) as well as moderate to small cluster size (insufficient berry numbers per cluster). Our primary objectives during the next few years are to determine optimum vine training and trellising system for this cultivar, as well as to develop cultural practices that optimize vine productivity and fruit quality.

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