

Nebraska Wine & Grape Growers Conference

March 3-5, 2016

Omaha Nebraska

Food for Thought

- Premium Grape = Premium Wine
- Balanced Vine = Balanced Fruit
- Dollar Spent = Loss or Profit

- Takes 5 years to find out we made a mistake
- Never too old to learn
- Don't get set in your ways

VINEYARD MECHANIZATION

- History
- Development of Complete Vineyard Mechanization System (Justin Morris)
- Preparation For Successful Vineyard Mechanization (Dr Striegler & Eli Bergmeier)
- Current Research Fresno State University and UC Davis(Kaan Kurtural)
- Current Research Cornell University (Terry Bates)

Development of Mechanization

- 1950 - UC Davis - first attempt for mechanical harvest
- 1957 - Cornell - first unit to be developed for commercial use (Chisam Rider)
- 2016 – Oxbo – Braud – Pollenc – Gregoire – Etc. to fit any trellis system
- Units are 99% Efficient with MOG removed

Oxbo 6120



Development of Complete Vineyard Mechanization System (Justin Morris)

- 1970 – Morris started development of total vineyard mechanization system
- Worked with Tommy Oldridge a grower and inventor to develop 40 different machines and attachments of which 20 already existed
- Operations included dormant and summer pruning, leaf removal, shoot and fruit thinning, canopy management and harvest

V-mech 2220 Trailer



V-mech 2220 Trailer



Sprawl Pruner



Sprawl Prunner



Rotary Pruner



Shoot Thinner





VSP Cordon Brush



Cordon Brush



Fruit Thinner



Leafer



Sickle Hedger/Pruner Combo



Dr Striegler Gallo Grower Field



In Operation



Sprawl Prunner



Gallo Field



Equipment Rodeo in King City Area



Chile Vineyard







Labor Cost

- Labor cost comparison for conventional and mechanical canopy management of 'Cabernet Sauvignon' grapevine in Fresno, CA.
- Hand Pruning \$403.59
- Mechanical prepruning with hand shoot thinning \$153.42
- Mechanical box pruning with mechanical shoot thinning \$81.54

Mechanical Canopy and Crop Load Management

- Mechanization of canopy and crop load (Ravaz index; RI) management in vineyards was shown to reduce labor costs by 44 to 80%, maintain yield and quality at the farm gate, and reduce the overhead associated with human resources (Kurtural et al. 2012, Morris 2007, Poni et al. 2004).

Vine Uniformity



Preparation For Successful Vineyard Mechanization (Dr Striegler & Eli Bergmeier)

- Vine Uniformity
- Vine Condition
- Cultivar
- Trellis
- Irrigation System
- Vineyard Layout
- Vineyard Soil

Current Research Fresno State University (Kaan Kurtural)

- S. Kaan Kurtural, PhD
Bronco Wine Co. Research Chair
Associate Professor of Viticulture
University of California Davis
skkurtural@ucdavis.edu
- Interactive Affects of Pruning Systems,
Rootstock and Irrigation
- Improve Berry Quality and Maximize Yield

Current Research Cornell University (Terry Bates)

- Terry Bates, PhD
Cornell University Department of Horticulture
Cornell Lake Erie Research and Extension
Laboratory, Director
trb7@cornell.edu
- Creating a Commercial Vineyard – balanced cropping with the use of mechanization

Keep Learning

Wine Business Monthly – March 2016

Vineyard Mapping

The power of pairing aerial mapping with soil mapping