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 to 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
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
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• 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  
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• Creating a Commercial Vineyard – balanced cropping with the use of mechanization
Keep Learning

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Vineyard Mapping

The power of pairing aerial mapping with soil mapping