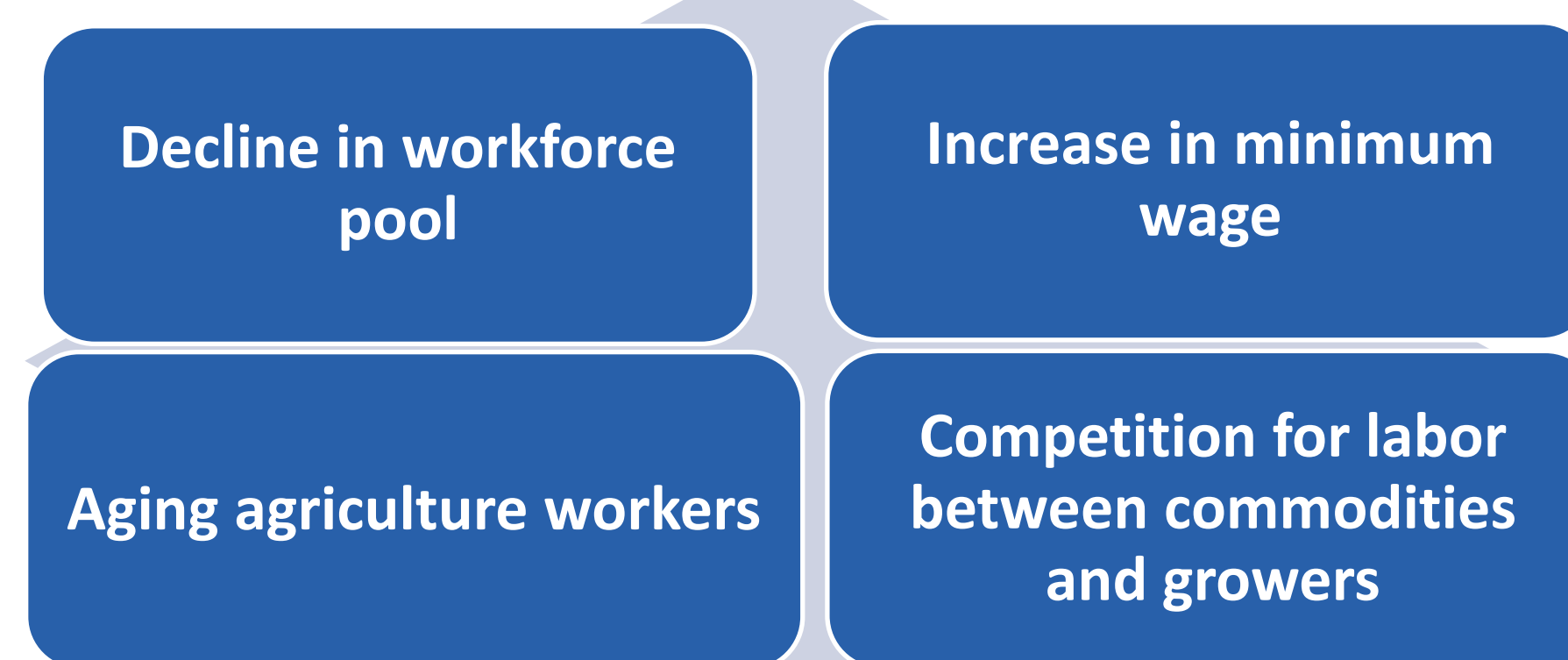


# Increasing work efficiency and reducing production costs in table grape vineyards through mechanization

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## Issues and Challenges

### Labor issues



Mechanization is an important solution for labor issues, but remains challenging in table grape vineyards

### Challenges of mechanization in table grapes



Figure. Vineyard on an open Gable trellis system

- Open gable system (picture above) is the most used trellis system in California table grape vineyards
  - ↓
  - Highly structured trellis makes mechanization difficult
- Table grape production requires more control over number and positions of shoots and clusters
  - ↓
  - Currently available technology cannot achieve such level of precision

## Project Example: Evaluate Pruning Mechanization Technologies

### Driven by need assessment

- Pruning is labor intensive and expensive
- Pruning mechanization is identified as the research priority by grower survey conducted by CA table grape commission (CTGC)
- Growers express strong interests on novel pruning technologies during informal interviews

### Supported by industry

- Project was funded by CTGC
- One medium-size and two large-size growers participated in research
- Two manufacturers and one local dealer provided equipment for the evaluation
- More than 30 people presented at the field demonstration

### Knowledge delivered in different methods

- Presentations at industry meetings
- Podcasts
- Trade journal articles
- Communication with growers during farm calls
- Video demonstration (upcoming)
- Pruning mechanization calculator (upcoming)

### Impacts observed one year after the evaluation

- Two growers started to adopt mechanical tools that were evaluated in this trial
- The success of this evaluation promotes collaboration with other manufacturers and allow incorporation of grower needs at the development stage of new technologies

Table. Cost saving resulted from pruning mechanization (expressed on per acre basis)

|  | Spur pruned vineyard                                | Cane pruned vineyard |
|--|---|----------------------|
| Andros pre-pruner (\$53,700 – 152,460)   | \$40 – 120 (based on trellis system and unit model) | -                    |
| Klima cane pruner (\$118,000)            | \$120 – 160   | \$130 – 150          |
| Battery powered pruner (~ \$1200)        | \$15 - 35   | \$15 - 35            |
| Battery powered tying machine (~ \$1500) | -   | \$50 - 75            |



Figure. Field demonstration for battery powered pruning tools



Figure. Evaluate pre-pruner at grower field

## Other Ongoing Projects on Mechanization

Explore mechanizing options for **shoot thinning and leaf removal**

Evaluate tools and technologies for accurate **yield estimation**

Assess novel instrument for **measuring berry composition non-destructively**

Continue exploring methods for **effective knowledge extension**