

Engineering Capacity: Workforce and Education

Karen Lewis
WSU Extension
Ephrata, Washington

Workforce

Production

- Owner
- Owner-Operator
- Field Consultant
- Farm Manager
- Farm Foreman
- Mechanics
- Pesticide Handlers
- Irrigators
- Supervisors
- Farm Workers
- Product Movers

Packing

- Managers
- Floor Managers
- Crew/Shift leaders
- QC Department
- Fruit Sorters/Packers
- Product Movers
- Shippers
- Sales

Owner-Operator

- Some college
- Decision Maker
- Risk Manager
- Average age:
 - 58 - fruit and Nuts
 - 54 - Greenhouse-Nursery
- Learns from neighbors
- Self taught/on the job
- Land Grant Research and Extension & USDA
- International Research/Travel
- Vendors
- Grower-member educational programs
- WWW
- Consultants

Field Consultants/ Area-Co. Horticulturists/Entomologists

- College educated
- Out of school for 15+ yrs.
- High demand – low supply
- Research/ extension programs
- USDA -ARS
- International research and travel
- Grower member educational programs
- Investigation/mistakes
- From one another
- In house
- WWW

On Farm Manager / Foreman

- Few are college educated and if so, rarely in AG sciences
- Moved up through the company
- Chances are the person is a minority (Hispanic or ?)
- From neighbors
- On the job
- Self taught
- Pesticide Education Programs
- Research and Extension programs
- Community and Technical Colleges
 - WVC Bilingual Agricultural Education Programs

Education System for Professionals

- **Formal Education – Certificate and degree programs at 2 and 4 year institutions – including 2 plus 2**
- **Informal - Extension Education –100 + Land Grants Universities are home to the Cooperative Extension System (CES). The system has over 3000 offices across the country. Established to bring take research based information from the University to the farm and farm community.**

Immediate Problem

- Numbers of skilled workers required to provide culture and harvest crops is great.
- Apples – 200 man-hours/acre
- Pears – 200
- Sweet Cherries – 350
- Blueberries – 80
- Wine Grapes – 150
- Number of people available for work in agriculture is dropping – competition, fewer numbers.

Immediate Problem

- **Crops have specific windows for tasks to be completed...and these are weather dependent. Tasks occur in all four seasons for short periods of time**
- **Costs to employ is increasing**
- **Immigration Reform...radar**

Recruitment and Retention

- **Strategies are changing**
 - **Diversification**
 - **New planting systems**
 - **Competitive wages & bonus systems**
 - **H2A enrollment**
 - **Family and village connections**
 - **Housing and other perks**

“The” Workforce

- **Total number unknown – est. 1.6M (75%)**
- **Large percentage are illegally documented**
- **Male**
- **Married (55%)**
- **31 – migrant / aging - settled/local**
- **Work is physically demanding**
- **Skilled**
- **Free to move/ name their price**

Washington State Production Agriculture

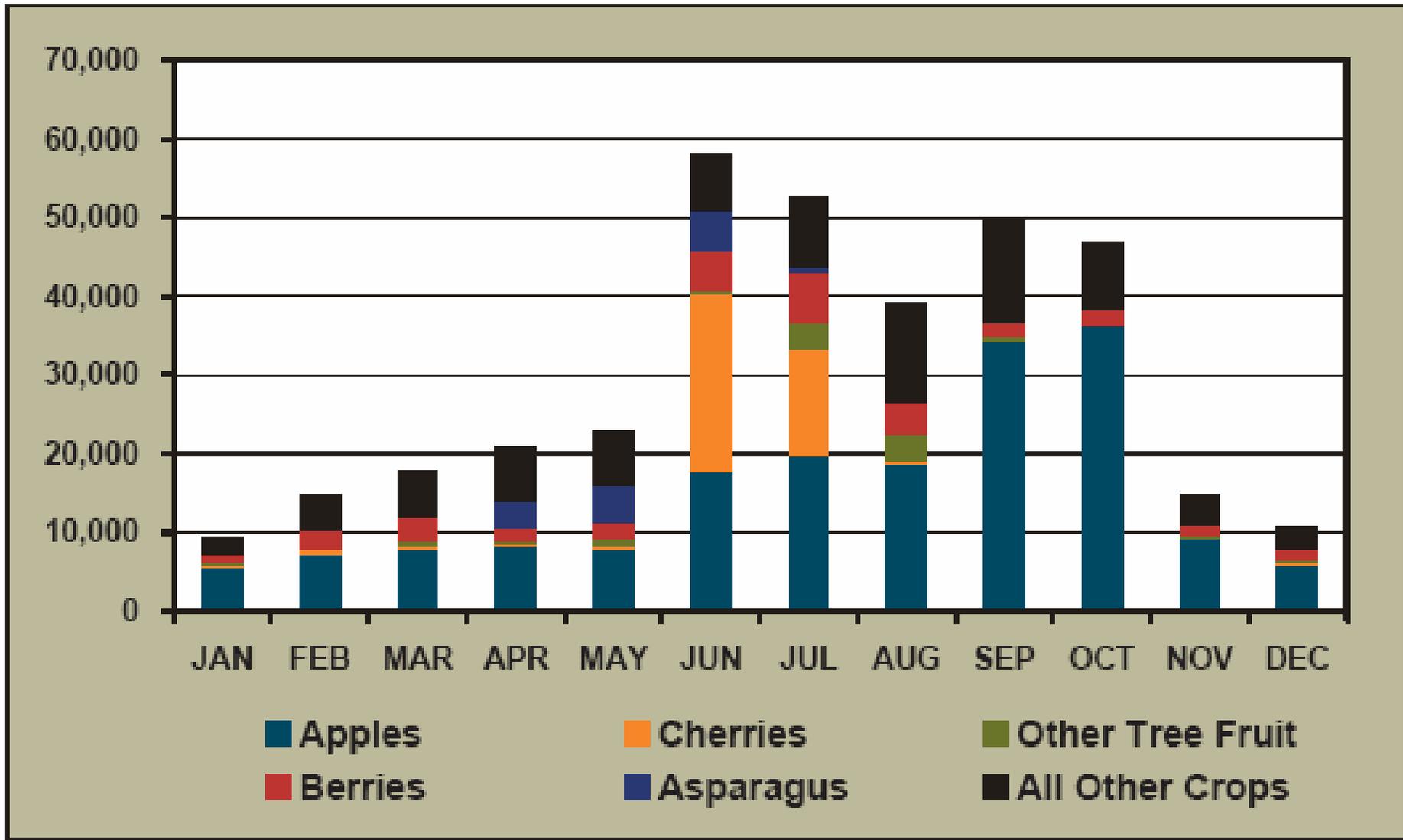
Top Five Sectors

1. Tree Fruit Production
36,761 (50.3%) (not all counted)
2. Support activities for crop production
11,421 (15.5%)
3. Other crop farming
6,553 (9.0%)
4. Greenhouse, nursery, and floriculture
5,067 (6.9%)
5. Vegetable and melon farming
4,649 (6.4%)

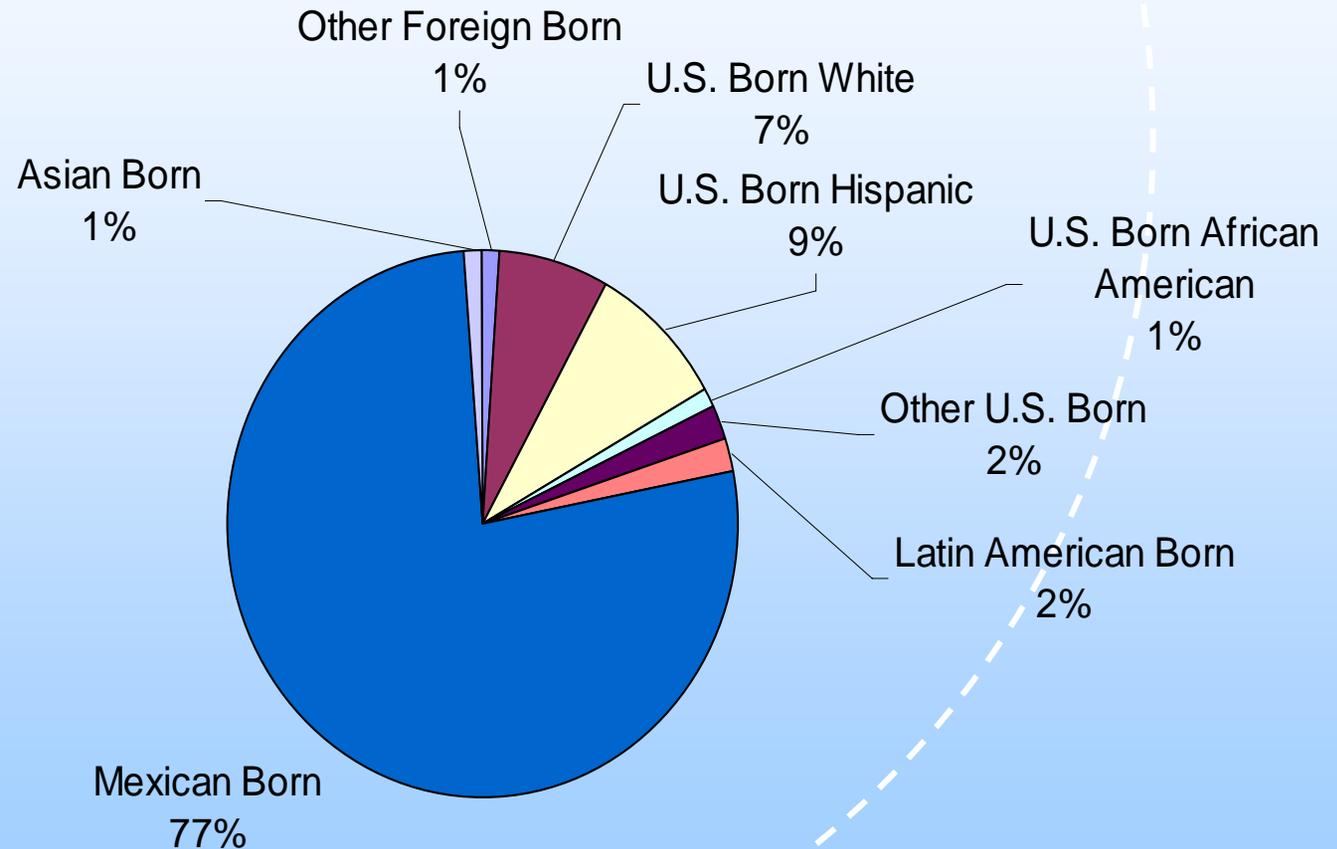
Washington State Food Manufacturing

Top five Sectors

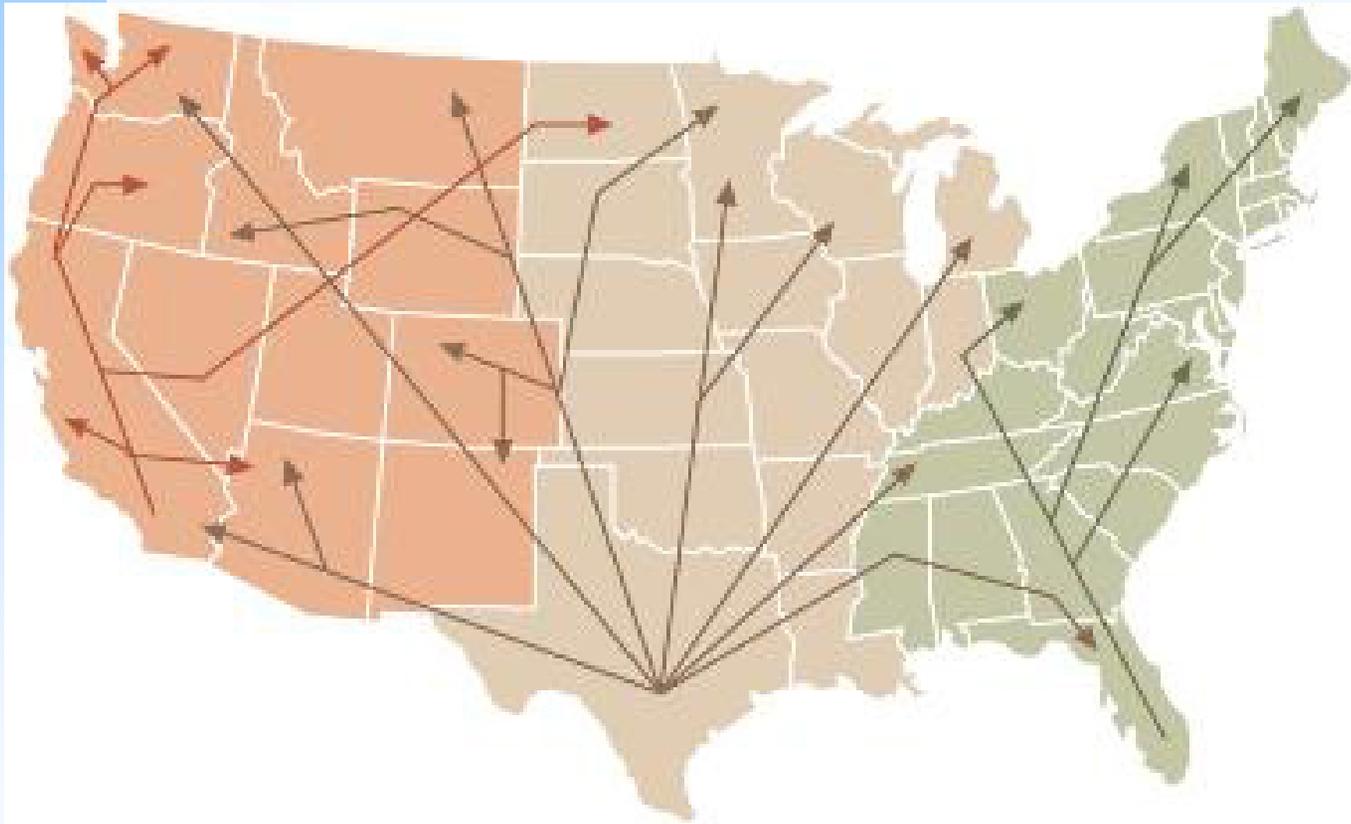
1. Fruit and vegetable preserving and specialty
10,133 (27.2%)
2. Seafood product preparation and packaging
6,465 (17.4%)
3. Animal slaughtering and processing
5,689 (15.3%)
4. Bakeries and tortilla manufacturing
5,128 (13.8%)
5. Beverage manufacturing
3,541 (9.5%)



Farmworker Ethnicity and Place of Birth



Migrant Streams – East, Midwest, West



Point-to-Point

- Moves from a “home base” to a work location far away.
- Often goes back to the same work location year after year.
- Often a whole family travels together.



Restricted Circuit

- Following crops in one area.
- Often centered around a home base.
- Usually adults from the household move to work but they come home frequently.



Nomadic

- Travels to wherever there is work.
- Usually does not know when or to where s/he will next move.
- Generally foreign born, young, single men working in the United States and sending money home.



Settling Out

- Becoming more common with changes in immigration enforcement.
- May not be the initial intention.



Concluding Remarks

- **Who are we today? – Who will we be tomorrow?**
- **Cannot predict the future – we need to invent it**

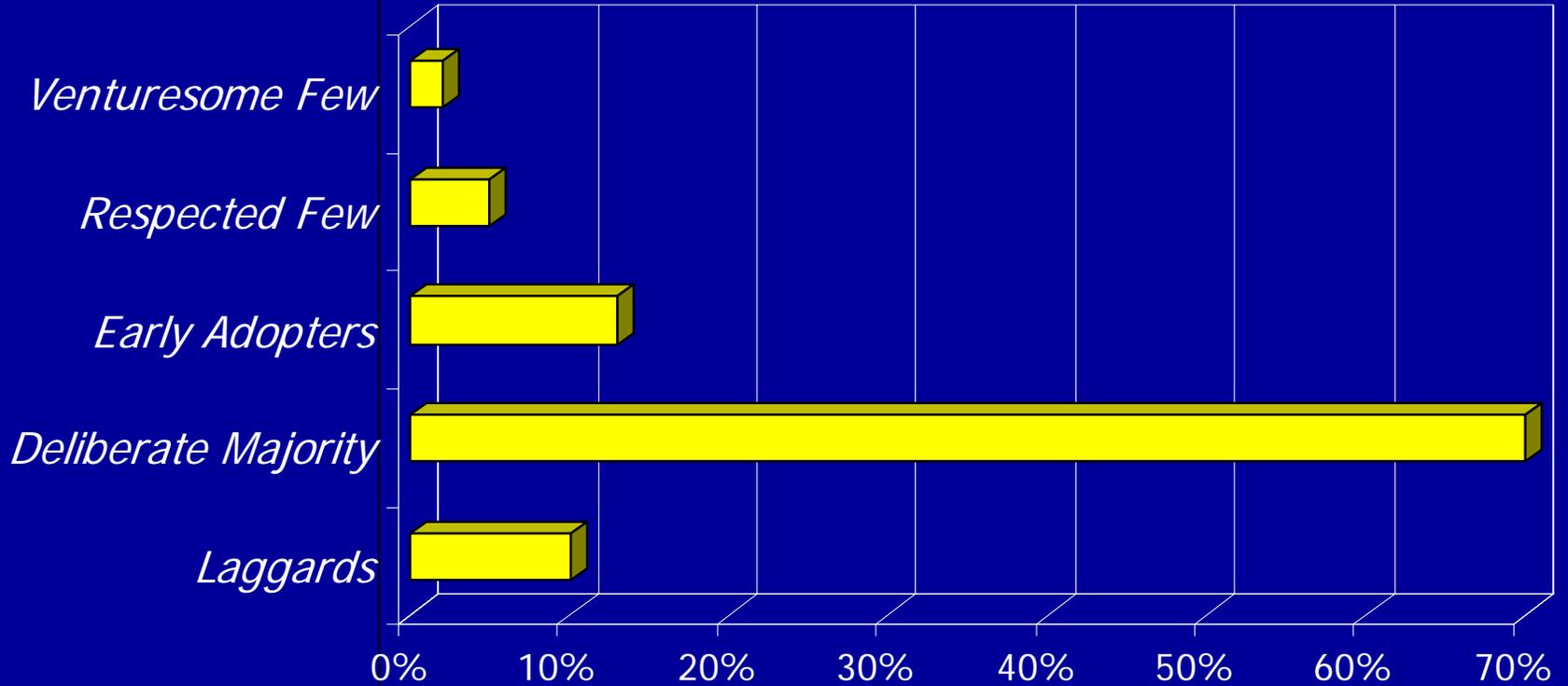
Concluding Remarks

- **“Workforce” is getting all the attention, however other weak links exist:**
 - **Professional workforce - Start in grade school and FFA. FAEIS numbers indicate few students entering and graduating in AG Sciences. Need to infiltrate the Universities now. Agricultural Engineering has been identified as a “profession in need”.**
 - **Aging population**

Concluding Remarks

- **Identify those (throughout the workforce) that will champion new tools and technologies**
- **New technology should not result in lower annual incomes, have negative impact on health and safety issues, should widen the net and make agriculture more attractive.**

Stages of Technology Adoption



Extension

- **Technology Transfer - Without an initiative that details specific goals and outcomes and one with dollars attached, it is my opinion that Extension will not meet your needs or expectations.**