Making Silage in Custom Operations: Challenges and Opportunities

C. Collar and N. Silva-del-Rio
Farm Advisors – UCCE
Kings and Tulare Counties
Introduction

• Silage is an important feed.
• Estimate 800,000 acres corn/small grains.
• About 18 million tons of silage.
• “Custom” operations harvest the vast majority of these crops.
Custom Harvesters

• Critical members of the “silage team”.
• Assist in locating purchased sources of feed.
• Advise on forage crop management.
• Communication is important!
Communicating with Custom Harvesters

• In planning the Silage Symposium we wanted to include their perspective.
• This led to an effort to find them, listen to them and describe them.
Background

Name:____________________________________
Location ______________________________
Serving the counties of:___________________________

How many years have you had your business?  < 5   5-10   10-15   >15
Other____________________________

Are there other family members involved in the business?  Yes / No,    How many?__________

How many employees do you have? ___________ Harvesting    ____________  Mechanics

How many crews do you have? _________________ A crew includes:
#______choppers,  #_______trucks,  #_______packing tractors,  #_______water truck,  _____foreman

What is the longest distance you travel to provide your services?______________miles

How many acres do you harvest in a calendar yr (averages 5 yr)? ________________
Established Operations

- 25 to 30 in San Joaquin Valley ???
- We contacted 12; interviewed 9
- In person or by phone
- Kern to Merced
What We Asked

• Background
• Harvest equipment
• Harvest scheduling
• Crops, delivery, packing
• Chop length, processing
• Pricing, subcontracting
• Problems / challenges
• Opportunities to improve quality
What We Learned
Characteristics

• Business experience - 15 to over 40 years
• Family operations
• Crews – 1 to 9
• Employees – 10 to 130
• Service provided 50 to 70 miles from base
• 100,000 to more than 2 million tons/year
Crews and Equipment

- Crew = foreman, chopper(s), trucks, packing tractor(s), and often water truck.
- Trucks are owned and/or subcontracted.
- Various brands, models and sizes of choppers and packing tractors.
Equipment Service/Repair

- In season - daytime and at night.
- Major overhauls in between seasons.
- Mechanics and well equipped shops.
Silage Structures

• Pile is most common.
• Bunkers, drive over, bags less common.
• Size range from 500 to over 20,000 tons.
Building Piles

- Time to build varies.
- Days to a month or more.
- Target 150 to 250 tons per hour.
- Temporary covers for extended harvest.
- Opened / resealed 3 or more times.

Not as easy as it looks!
Field Size

- Average 50 to 60 acres (range 20 -160).
- About 1400 to 1700 tons corn.
- Multiple fields required for large piles.
- Adds logistical complexity to harvest.
Packing Piles

- Packing assured by adjusting number of packing tractors and delivery rate.
- Distance from field to pile is 3 to 5 miles.
Packing Piles

Great skill is required for packing.
Delivery Rate

- Problem when forage arrives too fast.
- Can adjust truck number, choppers in field.
- Extra tractor on pile not always an option.
- Other variables can impact rate.
- Careful, detailed coordination required.
Drive Over Piles

- Not popular.
- Main concern is space required.
- But if client wants, they will build.
Chop Length (TLC) and Processing

- TLC 10 – 21 mm (0.4 to 0.8 inches).
- Adjust for moisture – shorter for drier material.
- Most corn is processed.
- Roller open 0.5 to 3.0 mm (0.02 to 0.12 inches).
Services Provided

• Find silage for dairies and dairies for silage.
• Agronomic advice; timing of last irrigation.
• Chop, haul and pack.
• Price range $8.05 to $9.25 per ton.
• Paid by buyer of crop.
• No correction for moisture.
• Extra: inoculant application, additional packing tractor, mileage if more than 2-3 miles from pile.
Challenges

- Crop moisture assessment
- Short harvest window for small grains
- Inadequate space for building piles
- Difficulty with hired labor
- Working with consultants (especially nutritionists)
- New “start ups” undercutting price
- Collecting payment from dairies
Issues with Moisture

Timing last irrigation
Issues with Moisture

- Determining moisture of standing crop is very difficult.
- Target is 67 to 70% moisture.
Issues with moisture

Fields are not uniform.
Harvesting when plant moisture is too high leads to excessive run off – or worse, a “split” pile.

Pulling out of a field that is too wet is costly – time and money.
Small Grains: Compressed Harvest Window

- Big problem; south SJV
- Six weeks or less
- Late March to early May
- Mostly wheat; few varieties
- Mature within a narrow time frame
- Harvest capacity stretched to limit
Not Enough Space

- Silage storage capacity has not kept up with increased dairy size.
- Inadequate space for incoming crop.
- Irregular shapes or very high piles can be dangerous.
- Impacts quality.
Have space for:

6000 Tons

Need space for:

9000 Tons
Labor Issues

• Most work is seasonal.
• “Hard to find good people for seasonal work.”
• Core group may return each season – but need for additional workers can ramp up quickly.
Issues with Consultants

- Do not always appreciate harvest logistics when making recommendations.
- Communicate early.
- Show up during harvest.
- “We both work for the dairyman.”
Opportunities

Agronomic:

• Water - slope, leveling, irrigation schedule.
• Manure application to fields.
• Pest and weed control (poor last season).
• Crop selection and planting schedules to lengthen harvest season in spring.
• Focus by seed companies on genetics suited to irrigated Western conditions.
Opportunities

Logistical:

• Water – ability to move volume needed when needed for proper irrigation.
• Pile construction – provide a bigger footprint; “give us more room!”
Opportunities

Interpersonal:
Foster communication within the team.

Rodney Evangelho, Dan Miller
Don Giacomazzi

Seed people, growers, dairymen, nutritionists and harvesters – all can benefit from improved understanding of issues and constraints.
Summary

• Making silage is complex, intense work.
• All aspects require great coordination.
• Harvesters strive to deliver what clients want.
• Agronomic/logistical opportunities to improve quality may be constrained by economy...
Summary

...open dialogue among everyone with a vested interest in growing, harvesting and feeding silage holds promise for improved quality.

And that could make EVERYONE happy!
Acknowledgements

Thank you to all of the harvesters that we interviewed – for sharing your time, your stories and your trust in us.

And thank YOU for attending the Silage Symposium (because this starts the dialogue).