Strawberry Production
Grace Fedak – Serviceberry Farms
Alberta Farm Fresh School 2015

History
• Olds College Horticulture Diploma, 1983
• Growing strawberries since 1986
• 4 acres, matted row, at peak production
• Junebearing, Kent variety
• Secondary income

Principles of Success
• Passion to grow the best
• Determination to make it work
• Successful production, financial rewards follow

Startup years
• Do it "by the book"
• Order online, Commercial Strawberry Production Guide
  • $20 from AB Ag
• Know basic production principles
• Gain experience, then adapt for your situation
Learning

- Attend berry schools/conferences/tours
- Online reference, applicable to region
- Visit other growers, local and regional
- Join industry association(s)

Learning (continued)

- Start small, manageable size
- Mistakes and failures on a small scale
- Expand only as you learn production techniques
- Attention to detail and precise timing
- Keep good records

Location Criteria - looking for land

- Near large customer base
- Easy access, all weather road
- Irrigation or water source (NOT a well)
- Sandy Loam soil
- Established shelterbelts (wishlist)

Field considerations

- Slope, good drainage, no low spots
- Air flow to prevent frost pockets
- Soil pH 6.5 or lower
- Shelterbelts
  - Existing or plan to establish
- Temporary shelter
  - Snow fence, corn, sunflower, board fence

Photo by Robert Spencer
The Strawberry Plant

- 2 major types, June bearing & Day Neutral

- June bearing
  - Plant one year, harvest the next year
  - Flower buds set at 14 hr or shorter day lengths
  - Production over a 4-6 week period

The Strawberry Plant (continued)

- Day Neutral
  - Flower buds develop under any day length
  - Produce roots, runners, leaves, flowers and fruit all at once
  - Fruit produced in 1st year
  - Majority of production, mid-Aug until frost

Choosing cultivars

- Buy certified plants
- Factors to consider
  - Winter hardiness
  - Yield and quality
  - Disease and insect resistant
  - How you will market
    - U-pick vs Community Shared Agriculture (CSA) or Farmers' Market

Images of strawberry plant and roots.
Cultivars - Kent

• Developed in Kentville, Nova Scotia
• Most common grown on the prairies
• Highest yield in research plots
• Ripe berries are red throughout
• Excellent flavor
• Mid-season variety

Other June-bearing varieties

• Cabot
  • Large berry, peaks about 2 weeks later than Kent
• Cavendish
  • can have uneven ripening
• Honeoye
  • tip ripens last, flavor depends on soil type
• Valley Sunset
  • new intro from N.S.

Day Neutrals

• Seascape
  • High yields
  • Bright, large firm fruit
  • Good late producer

Day Neutrals (continued)

• Tristar
  • Very good hardiness
  • Medium size fruit
  • Similar characteristics to Seascape
• Albion
  • Cone shaped berry
  • High quality fruit
  • Less yield and less winter hardy than Seascape

Years prior to planting

• Soil test to know soil fertility
• Eliminate weeds, especially perennials
• Avoid fields where nightshade family, alfalfa, or raspberries were grown in previous 4 years

Planting year process

Before Planting
• Apply high phosphorous, 11-52-0
• Preplant herbicide
• Cultivate field, two different directions to incorporate
• Set out irrigation pipe
Planting

- Bareroot plant, keep 1-3°C before planting
- Hand/cultivator trench/transplanter
- Damp soil, but not wet
- Planting depth, half way up the crown

Plant Spacing

- 12-18” in the row
- 4-5’ between rows
- Check plant depth
- Average 10,000 plants per acre

Moisture Requirements

- Irrigate for good root establishment
- 12”/year average, depending on rainfall
- Sufficient moisture at root zone at all times
- Avoid “wet feet” or roots in standing water
Deblossom (June)

• 3-4 weeks after planting
• Remove entire flower stalk before fruit set
• May need to deblossom 2 or 3 times/season
• Results in higher yield next year

Weed Control (all season)

• Hand weed
• Control weed seedlings when small
• One shallow cultivation, if necessary
Chemical weed control
• Know your weeds, to match herbicide
• 4-6 weeks after planting
• After plant is well established
• Before runners start to root

Fertilization (July & August)
• Light application of Nitrogen at runnering
  • 1 or 2 light applications, early/mid Aug, one week apart
    • Approximately 25-50 lbs N/acre (total)
  • No later than mid-August
  • Granular fertilizer must be watered in

Runner Management (July, Aug, early Sept)
• Drag runners into the row
• Hand or small cultivator shank
• Same direction
• Before runners start to root
Fall Weed Control

• Herbicide application, if required (late Sept/early Oct)
• If clean field, this step may not be necessary
• Volunteer wheat and weed control next spring
• Water in

Straw Mulch Application

• Protects from drying winds & cold temperatures
• Clean wheat or rye straw
• Plants need to be dormant
• After 3-4 nights of -5°C
• Apply 4-6” straw over the row
Picking Year process (2nd+ year)

Mulch removal (Apr/early May)
• straw into aisles
• when new growth begins
• two passes, rotary mower & rake
• delayed removal reduces yield
• leave approx 1/2" of straw over plants

Benefits of straw mulch
• Keeps berries clean
• Conserves moisture
• Suppresses weeds
• Ease of picking in wet weather

Spring Fertilizer Application
• Light rate, 10-15 lb Nitrogen/ac
• Can be spread over the straw before removal or afterwards
• 2nd fertilizer application when flower buds are emerging
• Optional, foliar spray
Frost Control
- Open blossoms, most vulnerable
- Begin when air temp is 0°C
- Black centers, no fruit
- Overhead fine mist, 1/8" nozzles
- Continue irrigating until ice melts

Weed Control
- Little required if field was kept clean
- Hand dig out perennial weeds
- Chemical control for volunteer wheat (if needed)

Disease Control
- Fungicide application for Botrytis gray mold
- Begin application prebloom and continue every 10-14 days
- Alternate chemical families

Insect Control
- Tarnish Plant Bug (Lygus), most common and most destructive
- Causes "catfacing" on berries
- Especially destructive on day neutrals
Photos by Robert Spencer

**Harvest**

- Average 30 days from flower to fruit
- Average provincial yields
  - 3200-7500 lbs/acre
- Sell by weight
- June bearing, 4-6 weeks, early July-Aug
- Pick every 3 days

**Renovation**

Why renovate?
- Regenerates June bearing plants by encouraging new leaf growth
- Fertilizer & organic matter incorporation
- Aerates soil
- Narrows the row

**How to Renovate**

- Mow tops of plants to remove old leaves, no later than Aug 5
- If late harvest, can mow Aug 5-15 (no later), but mow only top 3"
- Broadcast fertilizer, 50 lb/ac nitrogen
- Rototill on either side of row by removing centre tines
- Irrigate
Straw Mulch Application

- Same process as in Year 1
- Some time between Thanksgiving and Halloween

Day Neutral Production

- Produces fruit the first year
- Expands picking season into fall
- Can be more challenging to grow
Differences from June bearing

• Shallower roots
  ▪ More winter injury, moisture and nutrient management
• Will set flower buds at any day length
• Daytime temp 28°C or more, reduces flower initiation
  ▪ Cooling required

Planting Day Neutrals

• Plant as early as possible
• Field prep same as Junebearing
• Two different layout options

Day Neutrals – Option 1

Annual production - Cropping 1 year
• Staggered double row, 12” apart
• 5’ between rows
• Remove runners
• 1st flush of berries will be smaller

Day Neutrals – Option 2

• Cropping 2 years
• Single row similar to June bearing
• Runners are not removed
• Day Neutrals - DO NOT RENOVATE

Day Neutral Management

• Pay more attention to fertility, 2x/month
• Apply straw 6-8 weeks after planting
• Crop cooling at 28°C or higher
• Disease/insect control - note days to harvest
• Frost protection in fall to extend season
  ▪ Irrigation, covers

Equipment for 3 acre Production

• 3-point hitch, small 4WD, (40hp) tractor, wheel spacing flexibility
• Stirrup hoe
• Cultivator and/or disc
• Rototiller, use sparingly
• Planter with packing wheel
• Frame for packing plants & deblossoming
Equipment (continued)

- Sprayer, capacity 150 psi & 100 gal/acre
- Backpack sprayer
- Rotary mower
- Pitch Fork
- Rake to remove straw mulch in spring
- Straw spreader

Upick Considerations

- Clean, neat, mowed, weed free farm
- Locate fields away from house and living area
- Separate driveway, if possible
- Fences and locking gates
- Grass parking area

Upick Considerations (continued)

- Washrooms - flush or rent Port-a-Potty
- Handwashing area
- Good signage
- Picnic Tables
- Efficient layout, good traffic flow
Upick Considerations (continued)

- Provide pails for picking
- Assign rows/area to pick
  - Use flags as markers
- Give good instruction
- Have enough trained staff
- Sell by weight

Opportunities

- Calgary within hour driving distance
- If successful, grow enough acreage to supply demand
- Strawberries – the romance fruit
- A very rewarding and fun crop to grow!