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Carrot and Queen Anne’s Lace

• Both are *Daucus carota* L.
• QAL is a feral carrot!
• Will cross readily
• QAL is increasing its range in PNW
Carrots are Biennials
They complete their seed cycle in two years

- Example: Carrots, Beets, Cabbage, Celery, Onions, Parsnips, Swiss Chard, Turnips

- Often require vernalization in order to initiate flowering: roughly 8wks – 10 weeks @ < 50°F and >85% humidity.

- Plant for optimum over-wintering size and condition. Expect to lose some of crop over winter.

- Carrots are warm to hot season – dry seeded crop and require mild springs to hot summer transition for optimum growth and seed quality.

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Planting the Crop – 1\textsuperscript{st} Year

- **Root to Seed Method**
- Sow mid-summer
- At vegetable density
- Loam soil with even moisture
- Pull the crop in fall and select before storage
- Store in earthen structure or cold room

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Planting the Crop – 2nd Year

- Select for good storability
- Plant at 8” to 18” apart
- Row centers at 3’ to 4’
- Stake as necessary
- Will mature early to late September

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Reproductive Cycle

- Cross-pollinated sp.
- Largely insect pollinated
- Perfect flowers
- Stigma and anthers do not mature at the same time
- Wasps are important pollinators!
Minimum Isolation Distances

• Depends on the terrain – are there natural barriers in the landscape?
• Depends on the size of adjacent crops
• Where is the nearest QAL population?
• Can you tell QAL from other wild Apiaceae spp.?
How much isolation for Carrots?

• 1 mile isolation for two varieties of the same type without barriers
• 0.5 mile isolation for two similar varieties when barriers are present
• 1.5 miles isolation for two varieties of different types without barriers
• 0.75 mile isolation for two dissimilar varieties when barriers are present
Genetic Maintenance - Population Size

- Cross-pollinated crops: 80 - 100 plants minimum for resiliency of the population
- Avoid inbreeding depression
- Maintain genetic diversity
- Genetic resiliency for important traits
- Plan for losses, plant at least 200 plants

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Genetic Maintenance

• Early Season
  • -top height & stature
• Mid Season
  • - foliar disease
  • - upright stature
• Late Season
  • - root shape & color
  • - crown size
  • - blunting
Harvest Techniques

- Harvest when 60 – 70% of seeds are brown
- Pull plants or cut at base
- Windrow onto “tarps”
- Make sure roots stay off the tarp

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Post Harvest Drying Seed/Plants

- Completes maturity
- Dries plant material for separation
- Preserves seed
- Techniques: breathable cloth, table, screens, turning, fans, heat

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Drying Seed:
Covered area with good circulation

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Drying seed options

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Dry Seeded Crops

Fanning and Winowing: Gravity Separation

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Light Seed & Chaff         Heavy seed

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Screening

- Separation by size
- Remove larger chaff
- Remove smaller debris
- Separate seed sizes
- Screening materials

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Screen Cleaner

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Seed Storage

- Moisture Content – check w/ a bag or coin envelope!
- Cleanliness
- Temperature F + %Humidity = < 100
- Containers: envelopes, jars, rubbermaid, tupperware, bags
- Commercial longevity 3 – 4 yrs / personal 5 – 7 years
- Location: dry, cool, refrigerators and freezers, avoid temperature fluctuations

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