Best Management Practices for Carinata Production



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Brassica carinata

Emergence/seedling Vegetative Bolting establishment







25 DAP

50DAP

70 DAP

Flowering Seed development/ Seed maturation dessication



Maximizing Yield Potential

3500 lb seed/acre 200 gal oil/acre

Yield Protecting Factors

Harvest management Weed control Insect control **Disease control** Irrigation

Yield Building Factors Reproductive branches

Crop improvement Crop rotation Plant nutrition Tillage **Plant density Planting Date**

Best Management Practices

Grain

Yield

Pod number, seeds per pod

1000 Seed Weight

High yielding genotypes



Optimum planting date



Planting date Variety

Optimum N application rate



N uptake and removal N timing and rate N source N Use screening N and tillage method

Optimum seeding rate and row spacing



Seeding rate Row spacing

Harvest management

Timing of Swathing and Chemical Desiccation on Carinata Grain Yield (Quincy, FL)



Timing of chemical desiccant Timing of swathing

Row spacing effects on carinata grain and oil yield and fatty acid composition

| Row Spacing | Grain Yield | Oil Yield | Oil | Protein | Fatty acid composition (%) | | | | | | |
|----------------|-------------|-----------|--------|---------|----------------------------|--------|--------|--------|--------|--------|---------|
| cm | kg/ha | l/ha | (| % | C 16:0 | C 18:0 | C 18:1 | C 18:2 | C 18:3 | C 20:1 | C 22:1 |
| 18 | 4139 b | 2156 b | 42.1 a | 28.3 ab | 3.0 b | 1.1 a | 11.3 a | 16.2 a | 13.1 a | 9.6 ab | 37.3 b |
| 36 | 6840 a | 3557 a | 41.7 a | 28.3 ab | 3.0 b | 1.1 a | 11.6 a | 16.4 a | 12.8 b | 9.8 a | 37.2 b |
| 54 | 3724 b | 1927 b | 41.7 a | 29.1 a | 3.1 a | 1.1 a | 10.7 a | 16.2 a | 13.2 a | 9.4 b | 38.2 a |
| 90 | 2497 с | 1316 c | 42.6 a | 28.0 b | 3.0 b | 1.1 a | 11.6 a | 16.2 a | 13.1 a | 9.7 ab | 37.7 ab |
| LSD | 1066 | 524 | 1.17 | 0.92 | 0.07 | 0.03 | 1.11 | 0.61 | 0.27 | 0.35 | 0.82 |

High impact production practices

- Variety selection- yield, maturity
- Fertility (soil test P, K, Ca, Mg, micros)
- Soil moisture at plant
- Rotations (winter crop before soybean, sorghum, sesame, etc., ALS herbicides?)
- Planting date (Nov. 1-30)
- High quality treated seed (6-7 kg/ha)
- Firm seedbed or conservation till



Carinata Production in Florida

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Brassica carinata is a promising oilseed crop with great potential for profitable cultivation in Florida. Its high oil content and favorable fatty acid profile make it suitable for the biofuel industry, especially as a biojet fuel. The University of Florida's North Florida Research and Education Center (NFREC) in Quincy, FL. has been working with Agrisoma Biosciences Inc.



- Weed control at plant without wild radish, be careful for residual herbicides
- N applied at 20-40 kg/ha at plant followed by 70 kg/ha late Jan. early Feb.
- Insect and disease control- scout and apply insecticides as needed
- Timely harvest (8-10%) moisture

Production Challenges

- Planting Potential yield reduction may occur with planting too early or late.
- Frost/freeze damage—There is a potential of significant cold weather events damaging young plants or plants with early lush growth.
- Diseases—Although significant losses due to disease in carinata have not occurred in Florida, scouting and control may be necessary.
- Residual herbicide—Carinata is sensitive to certain residual herbicides, especially routine chemicals applied to cotton and peanuts. Significant crop damage may occur if planted before prescribed planting intervals.
- Harvesting green, immature stems—Carinata stalks are tougher than canola or other mustards. Green stems will delay the harvesting process and use more energy.
- Harvest losses—Allowing pods to dry beyond optimal maturity may result in excessive shattering while harvesting, resulting in considerable loss in yield.