

2011 Canola Watch CCA CEU Self-Study

1. If fertilizer is also being broadcast when seeding is to be performed by broadcasting, it is recommended that double the amount of _____ be applied to ensure adequate availability.
 - a) Nitrogen
 - b) Phosphorous
 - c) Sulphur
 - d) All of the above
2. Broadcast seeding like all stand establishment techniques works better when growers plan in the fall because
 - a) There is more time to secure equipment necessary
 - b) Proper residue management is key and can be done at that time.
 - c) There is more time to access desired variety and herbicide tolerant system
 - d) There is more time for winter annual weed control
3. Broadcast nitrogen has a higher risk of denitrification when applied on _____, reducing N fertilizer efficiency.
 - a) Windy days
 - b) Hot, sunny days
 - c) Saturated soils
 - d) Frozen soils
4. _____ and _____ both tend to increase when soil moisture is excessive.
 - a) Mineralization and denitrification
 - b) Volatilization and denitrification
 - c) Denitrification and leaching
 - d) Volatilization and leaching
5. When soil testing for nitrogen, sample to a depth of _____ inches.
 - a) 6
 - b) 12
 - c) 18
 - d) 24
6. A fertilizer plan for phosphorous should ensure the seed-placed and total phosphate rates meet the _____ and _____ needs of the crop.
 - a) Start up and removal
 - b) Uptake and removal
 - c) Early and uptake
 - d) Uptake and residual
7. Elemental sulphur prills need time to break apart to increase the surface area, and then require _____ the sulphur into plant available form.
 - a) Microbes to acidify
 - b) Bacteria to oxidize
 - c) Microbes to immobilize
 - d) Microbes to mineralize

8. A response to the addition of potassium fertilizer is most likely on _____ and _____ soil.
- a) Coarse and gravelly
 - b) Warm and moist
 - c) Coarse and neutral pH
 - d) **Sandy and peat**
9. Wheat is more likely than canola to show a response when soil test levels of potassium are _____.
- a) 500 ppm or lower
 - b) 400 ppm or lower
 - c) **300 ppm or lower**
 - d) Also low for chloride.
10. Sulphur deficiency was observed in some canola this year, particularly on _____ soils where heavy rains washed the nutrient lower in the soil profile.
- a) Fine textured
 - b) Clay-loam
 - c) Exposed
 - d) **Coarse textured**
11. Approximately what percentage of Canada's canola production is exported annually?
- a) **80%**
 - b) 70%
 - c) 60%
 - d) 50%
12. No seed treatment or post-emergent pesticide is available for _____ control in canola.
- a) Flea beetle
 - b) Dingy cutworm
 - c) Glassy cutworm
 - d) **Wireworm**
13. When top-dressing, band stripping of dry urea will minimize surface contact and may reduce _____ potential.
- a) Ammonification
 - b) Denitrification
 - c) Immobilization
 - d) **Volatilization**
14. _____ is not recommended for post-seeding top-dress applications.
- a) **ESN**
 - b) Urea
 - c) Blends of urea with ammonium sulphate
 - d) UAN
15. Performance of broadcast UAN solution may not be as high as for other forms of nitrogen, but _____ will improve UAN performance.
- a) Application under a heavy dew

- b) Application at night
 - c) Spoke wheel injection or dribble band application
 - d) Application in high water volumes
16. When split applying nitrogen, the top-dress application of adding liquid nitrogen to the tank when herbicide spraying is not recommended because:
- a) Many herbicides used in canola make the UAN unavailable
 - b) Potential for leaf damage limits rates to a few pounds per acre
 - c) Herbicide applications are made when it is not raining
 - d) Crop injury can be reduced when tank mixing
17. _____ is the only product recommended to control Roundup Ready volunteer canola prior to seeding canola.
- a) Amitrol
 - b) Express
 - c) Pardner
 - d) CleanStart
18. Carryover of herbicides that rely on aerobic bacteria for breakdown may be greatest under _____ conditions.
- a) High soil pH
 - b) Extremely wet, saturated soil
 - c) Dry soil
 - d) Cool, moist soil
19. The May 11 issue contains cultural information on hastening crop maturity (besides switching to a shorter season variety). Which strategy is suggested to hasten maturity the most?
- a) Using Seed-placed phosphorous
 - b) Seeding shallow
 - c) Increasing seeding rate
 - d) Reducing nitrogen rates
20. The action threshold for flea beetle control is usually when 25% of leaf area is defoliated except:
- a) Under excellent growing conditions because the crop will compensate quickly.
 - b) When germination and emergence has happened quickly and seed treatment is still effective.
 - c) When a significant amount of stem feeding is occurring, requiring a lower action threshold to avoid severed stems which lead to 100% defoliation of affected plants.
 - d) Damage is limited to only field margins or adjacent shelterbelts.
21. Check emerged canola crops for bare patches, holes or notches in foliage, and clipped plants - telltale signs of _____ feeding.
- a) Gopher
 - b) Wireworm
 - c) Root maggot
 - d) Cutworm
22. The minimum plant population for canola to achieve its yield potential is:

- a) 7 to 14 plants/ft²
 - b) 4 to 5 plants/ft²**
 - c) 5 to 10 plants/ft²
 - d) 10 to 14 plants/ft²
23. If moist soil samples destined are allowed to warm up quickly in the truck cab or house, the warmth can accelerate soil microbes and increase _____, creating a false high result from the soil test lab.
- a) Mineralization**
 - b) Nitrification
 - c) Ammonification
 - d) Immobilization
24. Canola can germinate in soils as cool as _____ degrees Celsius, but it can take a long time and produce an uneven stand. A good starting point for seeding is when the three-day average is _____ degrees Celsius.
- a) two, ten to fifteen
 - b) five, ten to fifteen
 - c) four, eight
 - d) Two, four to five**
25. If tissue damage after a frost is greater than _____ of total leaf area, allow new leaves to grow before making herbicide applications.
- a) 60%
 - b) 40%**
 - c) 30%
 - d) 25%
26. _____ emerging weeds have _____ impact on yield than those emerging with or ahead of the crop.
- a) Later, more
 - b) Winter annual, more
 - c) Later, less**
 - d) Later, similar
27. Canada thistle is _____ more competitive than wild oats and may require a special approach for effective control.
- a) 1 to 2 times more
 - b) 3 to 4 times more**
 - c) 4 to 5 times more
 - d) 5 to 6 times more
28. The May 25 issue contains a table of relative yield of canola by seeding date (based on Manitoba Crop Insurance Services data). On what date did relative yield in each region drop below 100%.
- a) Second week of May
 - b) Third week of May
 - c) Fourth week of May**
 - d) First week of June

29. If planning a top up fertilizer application, nitrogen must be available before the _____ stage of the crop to provide the largest yield benefit.

- a) Bolting
- b) Flowering
- c) Emerging
- d) **5-leaf**

30. While scouting, you encounter the following lesion on a young canola crop. What is it?



Photo credit: Ralph Lange, Alberta Innovates

- a) Fusarium wilt
- b) Sclerotinia
- c) White rust
- d) **Blackleg**

31. A stand of only 1-2 plants per square foot may only yield _____ of an optimal stand.

- a) 30 to 40%
- b) **40 to 60%**
- c) 60 to 80%
- d) 80 to 90%

32. Yield potential of a field of volunteer canola is approximately _____ % of a typical crop based on MAFRI experience from 1999 and 2005.

- a) **25%**
- b) 15%
- c) 10%
- d) 5%

33. Lightly cultivating or harrowing to incorporate the seed into the soil is a strategy to help improve stand establishment under

- a) Direct seeding
- b) **Broadcast seeding**
- c) Heavy surface residue
- d) Heavy weed pressure

34. While scouting, you see the following symptoms: yellowing and leaf cupping on new leaves first with purpling of leaf edges when deficiency is fairly severe. What is it?
- a) Manganese deficiency
 - b) Iron deficiency
 - c) Sulphur deficiency
 - d) Potassium deficiency
35. Timely spraying of herbicides is more important than nozzle choice. AAFC research showed that spraying _____ days after crop emergence generated higher yields than spraying 17 days after emergence, no matter the droplet size.
- a) 7
 - b) 10
 - c) 12
 - d) 15
36. Keep your boom height low to reduce drift, but make sure to use a nozzle with a fan angle to provide _____ overlap at that low height.
- a) 50%
 - b) 100%
 - c) 25%
 - d) 30%
37. For Liberty, the buffer zone for aerial application is ____ metres from non-target plants and animals compared to a ____ metre buffer for ground application.
- a) 25, 2
 - b) 20, 1
 - c) 30, 1
 - d) 25, 1
38. When canola emergence is delayed due to cool, dry conditions which seedling disease causing species will tend to be worse?
- a) Pythium
 - b) Rhizoctonia
 - c) Fusarium
 - d) Brown girdling rootrot complex
39. To manage soil crusting, using a _____ may be worse than harrowing when soils are wet below the surface crust.
- a) Spoke wheel injector
 - b) Tether rake
 - c) Roller
 - d) Packer bar
40. The majority of nitrogen that is top-dressed must be taken up by plants through the _____.
- a) Stomata of leaves
 - b) Epidermal layer of leaves
 - c) Roots
 - d) Leaves and stems
41. What level of defoliation is depicted here?



- a) 25%
- b) 35%
- c) 50%
- d) Less than 20%

42. When spraying under extremely wet conditions, one way to minimize the impact of ruts is to

- a) Use narrower tires.
- b) Use higher tire pressure.
- c) **Keep sprayer ruts parallel to intended direction of travel for harvest equipment.**
- d) Increase speed of travel.

43. Extremely wet soils cause an _____, which results in root failure.

- a) **Oxygen deficiency**
- b) Acidic condition
- c) Aerobic condition
- d) Anionic condition

44. Besides nitrogen, _____ is another mobile nutrient that can be leached within the soil profile. Under wet conditions on light textured soils this can often lead to deficiencies in canola plants, at least temporarily.

- a) Phosphorous
- b) Potassium
- c) **Sulphur**
- d) Zinc

45. In this photo, the black body is called _____ and the structure germinating from it is called _____.



Photo credit: Faye Dokken-Bouchard

- a) Apothecia, ascospore
- b) Ascospore, Apothecia
- c) Sclerotia, ascospore
- d) Sclerotia, apothecia

46. In the June 29 Issue, the Sclerotinia Stem Rot Checklist was developed in _____?

- a) Sweden
- b) Canada
- c) United States
- d) Australia

47. The optimum time to spray for cabbage seedpod weevil is _____.

- a) Early bud stage
- b) Late bud stage
- c) Early flowering (10% bloom if possible)
- d) Late flowering (90% bloom if possible)

48. A general rule of thumb is that hail damage at the rosette stage results in yield loss that will equal _____ of the percentage of leaf area lost.

- a) Half
- b) A quarter
- c) Three quarters
- d) 100%

49. Leaf symptoms from _____ deficiency include leaf convex cupping, yellow chlorosis, red coloration or brownish or even whitish interveinal coloration. Symptoms on roots would be small and thickened roots.

- a) Sulphur
- b) Zinc
- c) Boron
- d) Potassium

50. Harvest losses of canola can be as high as 5 bu/acre which is equivalent to about _____ times the typical seeding rate.

- a) 50
- b) 40
- c) 30
- d) 20

51. For sclerotinia a general rule of thumb is that yield loss is typically about _____ of the disease incidence present in the field.
- a) A quarter
 - b) Three quarters
 - c) Half
 - d) 100%
52. Ground sprayers will trample crop, but a 100-foot boom with 12" wide tires on each side equals only _____ trampling, or possibly less if the sprayer has crop dividers.
- a) 1%
 - b) 2%
 - c) 3%
 - d) 5%
53. _____ aphid is the one species that will feed on canola bud clusters.
- a) Green peach
 - b) Birdcherry-oat
 - c) Greenbug
 - d) Turnip
54. What was the first Combine Clinic tip in the July 20 Issue?
- a) Feed canola as uniformly as possible into the combine
 - b) Avoid over-threshing
 - c) Don't assume canola separates easily
 - d) Travel at speeds that match a level of acceptable loss
55. Using the table in the August 4 Issue, if canola is \$11 per bu and the cost of controlling bertha armyworm is \$15/acre, what is the economic threshold?
- a) 26 larva per m²
 - b) 23 larva per m²
 - c) 22 larva per m²
 - d) 20 larva per m²
56. The pre-harvest interval is defined as the number of days that must pass between _____.
- a) the last application of a pesticide and combining.
 - b) the last application of a pesticide and delivering the crop to the elevator.
 - c) the last application of a pesticide and binning the crop.
 - d) the last application of a pesticide and cutting of the crop.
57. While scouting, you encounter the following. What is it?



- a) Sulphur Deficiency
- b) Phosphorous deficiency
- c) **Sunscald**
- d) Frost damage

58. Mr. Scout-a-lot calls to say he has green worms in his canola. He says a few of them have a shape that is quite distinctive – spindle shaped (wider in the middle than at the tips). However, the majority of the worms are a much fuzzier (hairy) larvae that feed mostly on leaves and don't appear to be causing too much damage. What two species of larvae are most likely in his canola field?

- a) Bertha armyworm, diamondback moth
- b) **Diamondback moth, imported cabbageworm**
- c) Imported cabbageworm, bertha armyworm
- d) Forest tent caterpillar, imported cabbageworm

59. CCC research shows that canola swathed at 30-40% seed colour change on the main stem yields about _____ less than canola swathed at 50-60% seed colour change.

- a) 5%
- b) 6%
- c) 7%
- d) **8%**

60. The following is lesion of _____.



Photo credit: Anastasia Kubenic

- a) **Blackleg**
- b) Sclerotinia
- c) Fusarium wilt
- d) Clubroot

61. The following is lesion of _____.



Photo credit: Anastasia Kubenic

- e) Blackleg
- f) **Sclerotinia**
- g) Fusarium wilt
- h) Clubroot

62. Lygus development is temperature dependent. Research has shown that it would take about _____ days for each instar to proceed to the next stage when temperatures are at 25°C with cool nights.

- a) 1-2
- b) 2-3
- c) **3-4**
- d) 4-5

63. A rough guide is that a 10% increase in seed color change occurs with about 5% moisture loss. So the period from 30% seed color change to 50% seed color change would need a _____ drop in moisture.

- a) 5%
- b) **10%**
- c) 20%
- d) 25%

64. Glyphosate for pre-harvest weed control in canola should be applied at _____ seed moisture which is about 30% seed colour change.

- a) 40%
- b) **30%**
- c) 20%
- d) 10%

65. Use aeration to bring down the temperature and/or moisture of binned canola to below _____°C and _____% moisture for long term storage.

- a) **15, 8**
- b) 10, 10
- c) 25, 8
- d) 15, 10

66. The following is a photo of _____.



Photo credit: Lloyd Dosdall.

- a) Thrip
- b) Late instar lygus bug
- c) Ladybird beetle larvae
- d) Parasitic wasp

67. The insect depicted below was found in high numbers in Manitoba's Interlake region in 2011. What is it?



Photo credit: MAFRI

- a) Painted lady butterfly
- b) Imported cabbageworm
- c) Bertha armyworm
- d) Zebra caterpillar

68. Proper diagnosis of _____ should always include digging up plants to check for gall formation on roots.

- a) Root maggots
- b) Root rot
- c) Clubroot
- d) Root girdling

69. If canola seed is below 10% seed moisture content but still green the enzymes to clear chlorophyll will restart when seed rehydrates to at least ____ moisture.

- a) 10%
- b) 20%
- c) 30%

d) 15%

CCA CEU Categories and corresponding questions

Crop Management = 11, 19, 22, 24, 25, 26, 28, 31, 32, 57, 52, 54, 56, 57, 59, 63, 65, 69

Pest Management = 12, 17, 20, 21, 27, 30, 35, 36, 37, 38, 41, 46, 47, 48, 50, 51, 53, 55, 58, 60, 61, 62, 64, 66, 67, 68

Nutrient Management = 1, 4, 6, 9, 13, 14, 15, 16, 23, 29, 34, 40, 45, 49

Soil and Water = 2, 3, 5, 7, 8, 10, 18, 33, 39, 42, 43, 44