Crop Protection Reviewer Based On TOS

Module C: Arthropods and Vertebrate Pests and Natural Enemies • By Agriculture Review

Review Questions (1 - 12)

1. A field surveyor notes crop damage from an insect possessing hardened forewings that meet in a straight line down the back. To which order does this pest belong?

a. Coleoptera
b. Lepidoptera
c. Diptera
d. Hymenoptera

2. In assessing a damaged cassava leaf, how can a practitioner distinguish a mite infestation from a typical insect pest based on adult morphology?

a. Presence of wings
b. Three distinct body regions
c. Four pairs of legs
d. Presence of antennae

3. Which developmental trajectory characterizes the life cycle of the fall armyworm?

a. Holometabolous
b. Hemimetabolous
c. Ametabolous
d. Paurometabolous

4. The golden apple snail was introduced to the Philippines primarily for what intended purpose before it became a major rice pest?

a. Aquarium trade
b. Human consumption as a protein source
c. Biological control of aquatic weeds
d. Animal feed filler

5. Scirpophaga incertulas causes the 'deadheart' symptom in vegetative rice. What is the common name of this pest?

a. Yellow stem borer
b. Rice bug
c. Brown planthopper
d. Rice black bug

6. When estimating the population of Nephotettix virescens in a rice field, which sampling technique is most appropriate for accurate threshold assessment?

a. Sweep net
b. Pitfall trap
c. Light trap alone
d. Water pan trap

7. Which order comprises the highest number of agriculturally significant phytophagous pest species globally?

a. Diptera
b. Lepidoptera
c. Coleoptera
d. Hemiptera

8. Which of the following field pests is widely recognized as an edible insect and is gathered by locals in the Philippines for human consumption due to its high protein content?

a. Locusta migratoria
b. Leptocorisa oratorius
c. Pomacea canaliculata
d. Nilaparvata lugens

9. Which insecticide mode of action is targeted when applying organophosphates to control diamondback moth larvae?

a. Chitin synthesis inhibition
b. Acetylcholinesterase inhibition
c. Sodium channel modulation
d. Ryanodine receptor activation

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10. Tetranychus urticae is a severe pest of many crops. Under which class does this organism fall?

a. Insecta
b. Arachnida
c. Chilopoda
d. Diplopoda

11. A mango orchard exhibits severe blossom drop and sooty mold development on the leaves. Which pest is the most probable primary cause of this phenomenon?

a. Mango pulp weevil
b. Mango seed borer
c. Mango leafhopper
d. Mango twig borer

12. The rice bug undergoes which type of developmental sequence?

a. Complete metamorphosis
b. Paurometabolous development
c. Ametabolous development
d. Hypermetamorphosis

Review Questions (13 - 24)

13. Which invasive pest caused a major outbreak in Philippine coconut plantations in 2013, prompting massive biological control interventions?

a. Aspidiotus rigidus
b. Brontispa longissima
c. Rhynchophorus ferrugineus
d. Oryctes rhinoceros

14. Which morphological feature is unique to adult mites and absent in adult aphids?

a. Opisthosoma fused with prosoma
b. Three distinct body segments
c. Presence of compound eyes
d. Presence of articulated mandibles

15. What occurs when a pest population reaches the Economic Injury Level?

a. Cost of control equals yield loss
b. Yield loss exceeds the cost of control
c. Pest population crashes naturally
d. Natural enemies migrate away from the field

16. Which scientific name corresponds to the Asian corn borer?

a. Ostrinia furnacalis
b. Helicoverpa armigera
c. Spodoptera litura
d. Pectinophora gossypiella

17. The use of Bacillus thuringiensis transgenic crops targets the larval stage of which insect order?

a. Hemiptera
b. Lepidoptera
c. Orthoptera
d. Thysanoptera

18. The condition known as 'hopperburn' in rice is primarily associated with the feeding activity of which pest?

a. Nephotettix malayanus
b. Nilaparvata lugens
c. Sogatella furcifera
d. Recilia dorsalis

19. Which destructive pest of corn was first reported in the Philippines in 2019 and quickly spread across major corn-producing provinces?

a. Fall armyworm
b. Asian corn borer
c. Corn earworm
d. Cutworm

20. Beauveria bassiana is applied to field crops to manage insect pests through which biological mechanism?

a. Toxin production targeting the gut
b. Entomopathogenic fungal infection
c. Sterilization of adult males
d. Juvenile hormone disruption

21. Which insect pest acts as the primary vector for the Rice Tungro Bacilliform Virus?

a. Green leafhopper
b. Brown planthopper
c. Zigzag leafhopper
d. Rice bug

22. To which family do highly destructive fruit flies, such as Bactrocera philippinensis, belong?

a. Tephritidae
b. Drosophilidae
c. Agromyzidae
d. Muscidae

23. In the life cycle of the coconut rhinoceros beetle, where does pupation normally occur?

a. In the crown of the palm
b. Inside the stem of the living palm
c. In decaying organic matter or soil
d. On the undersurface of the leaflets

24. What is the scientific name of the diamondback moth, a major pest of crucifers?

a. Plutella xylostella
b. Crocidolomia pavonana
c. Pieris rapae
d. Hellula undalis

Review Questions (25 - 36)

25. The order Thysanoptera includes which group of important agricultural pests?

a. Thrips
b. Aphids
c. Whiteflies
d. Leafhoppers

26. Which cultural practice is most effective in disrupting the life cycle of the rice stem borer immediately after harvest?

a. Applying systemic insecticides
b. Plowing under the stubbles
c. Flooding the field continuously
d. Broadcasting urea fertilizer

27. Which characteristic separates the Hemiptera from the Homoptera in older taxonomic classifications, although both are now considered a single order?

a. Structure of the forewings
b. Type of mouthparts
c. Presence of cerci
d. Number of tarsal segments

28. An insect hatches from an egg into a nymph that resembles the adult but lacks wings, and gradually develops wings externally. What type of metamorphosis is this?

a. Holometabolous
b. Hypermetamorphosis
c. Paurometabolous
d. Ametabolous

29. A farmer observes feeding damage characterized by irregular holes on leaves and the presence of dark, moist frass. Which pest is most likely responsible?

a. Aphids
b. Spider mites
c. Lepidopteran larvae
d. Thrips

30. The application of neem extract for pest management relies primarily on which active botanical compound?

a. Pyrethrin
b. Azadirachtin
c. Rotenone
d. Spinosad

31. Which borer species is primarily responsible for 'deadheart' in sugarcane during the early tillering stage?

a. Chilo infuscatellus
b. Ostrinia furnacalis
c. Scirpophaga incertulas
d. Helicoverpa armigera

32. Which monitoring tool is most successfully utilized to determine the flight activity and population density of the sweet potato weevil?

a. Yellow sticky trap
b. Light trap
c. Sex pheromone trap
d. Water pan trap

33. Which rodent species is considered the most destructive vertebrate pest in Philippine rice fields?

a. Rattus rattus mindanensis
b. Rattus norvegicus
c. Rattus argentiventer
d. Mus musculus

34. During which rice growth stage does Rattus rattus mindanensis typically inflict the highest economic damage by cutting tillers?

a. Seedling stage
b. Active tillering
c. Booting to heading
d. Dough stage

35. What is the primary physiological mechanism of action of first-generation anticoagulant rodenticides used in agricultural fields?

a. Inhibiting the central nervous system
b. Blocking the vitamin K cycle causing internal bleeding
c. Causing acute pulmonary edema
d. Depressing the respiratory center

36. Which bird pest species is notorious for flocking and feeding on the milky stage of rice grains?

a. Lonchura malacca
b. Passer montanus
c. Streptopelia chinensis
d. Pycnonotus goiavier

Review Questions (37 - 50)

37. Which field layout strategy is most effective in minimizing concentrated rat damage in a contiguous rice-growing area?

a. Asynchronous planting
b. Synchronous planting
c. Staggered harvesting
d. Planting tall trap crops at the center

38. Which metric is commonly used to assess the severity of rat damage in a rice field prior to harvest?

a. Number of active burrows per hectare
b. Percentage of cut tillers per hill
c. Amount of spilled grain on the ground
d. Number of rat footprints on mud

39. The Trap Barrier System is a non-chemical rat control method. What does this system primarily utilize to attract rats into the traps?

a. A synthetic pheromone lure
b. A small plot of early-planted rice
c. Peanut butter and dried fish bait
d. Ultrasonic sound emitters

40. Which vertebrate pest is known to cause significant damage to mature coconut fruits by gnawing holes near the peduncle?

a. Rattus exulans
b. Rattus rattus
c. Cynopterus brachyotis
d. Paradoxurus hermaphroditus

41. Why is pre-baiting highly recommended when using acute rodenticides like zinc phosphide in field operations?

a. To increase the toxicity of the poison
b. To overcome bait shyness among the rat population
c. To attract natural enemies to the area
d. To preserve the bait from rapid environmental degradation

42. Which insect order is composed primarily of parasitoids utilized extensively in the biological control of agricultural pests?

a. Hymenoptera
b. Orthoptera
c. Dermaptera
d. Odonata

43. The mass rearing and subsequent release of Trichogramma evanescens in corn fields aims to manage the Asian corn borer by targeting which life stage?

a. Egg
b. Larva
c. Pupa
d. Adult

44. Which predator is highly effective in managing aphid populations in vegetable crops due to its voracious feeding habits?

a. Chrysoperla carnea
b. Epilachna vigintioctopunctata
c. Spodoptera exigua
d. Bemisia tabaci

45. When evaluating the success of a classical biological control program, which parameter is the most critical indicator of long-term establishment?

a. Immediate 100 percent mortality of the pest
b. Presence of the natural enemy in subsequent planting seasons
c. Increased crop yield in the first week of release
d. Reduction of systemic pesticide use by neighboring farmers

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46. Inoculative release in biological control involves what specific strategic approach?

a. Releasing massive numbers of natural enemies for immediate knockdown

b. Applying natural enemies repeatedly throughout the season as a biopesticide

c. Releasing a small number of natural enemies to establish a reproducing population

d. Using chemical attractants to enhance native natural enemy reproduction

47. Which vertebrate predator is actively conserved in agricultural ecosystems for its efficiency in naturally regulating field rat populations?

a. Tyto alba

b. Lonchura punctulata

c. Passer montanus

d. Rallus torquatus

48. Which agronomic practice best promotes the conservation of natural enemies in an agroecosystem?

a. Prophylactic calendar spraying of broad-spectrum insecticides

b. Elimination of all non-crop vegetation in and around the field

c. Maintaining floral margins or beetle banks

d. Deep plowing of the entire field immediately post-harvest

49. How does the functional response of a predator differ from its numerical response when assessing its effectiveness against a pest outbreak?

a. Functional response refers to the predator's reproduction rate

b. Functional response refers to the change in the number of prey consumed per predator

c. Functional response refers to predator migration into the field

d. Functional response refers to the overall pest mortality rate

50. Cotesia plutellae is a commercially important natural enemy of the diamondback moth. What is its specific ecological role?

a. Egg predator

b. Larval parasitoid

c. Pupal hyperparasitoid

d. Entomopathogenic fungi

Detailed Answer Key

Q1: **a**	Q2: **c**	Q3: **a**	Q4: **b**	Q5: **a**
Q6: **a**	Q7: **c**	Q8: **a**	Q9: **b**	Q10: **b**
Q11: **c**	Q12: **b**	Q13: **a**	Q14: **a**	Q15: **a**
Q16: **a**	Q17: **b**	Q18: **b**	Q19: **a**	Q20: **b**
Q21: **a**	Q22: **a**	Q23: **c**	Q24: **a**	Q25: **a**
Q26: **b**	Q27: **a**	Q28: **c**	Q29: **c**	Q30: **b**
Q31: **a**	Q32: **c**	Q33: **a**	Q34: **c**	Q35: **b**
Q36: **a**	Q37: **b**	Q38: **b**	Q39: **b**	Q40: **b**
Q41: **b**	Q42: **a**	Q43: **a**	Q44: **a**	Q45: **b**
Q46: **c**	Q47: **a**	Q48: **c**	Q49: **b**	Q50: **b**

Explanatory Notes

1. Coleoptera: Beetles possess hardened elytra meeting in a straight line.

2. Four pairs of legs: Mites (arachnids) have 4 pairs, unlike insects with 3 pairs.

3. Holometabolous: Complete metamorphosis (egg, larva, pupa, adult).

4. Human consumption: Introduced for protein before becoming a pest.

5. Yellow stem borer: Causes deadhearts in vegetative stage rice.

6. Sweep net: Standard sampling tool for hoppers in rice fields.

7. Coleoptera: Largest order containing most phytophagous pests.

8. Locusta migratoria: Migratory locusts are gathered and consumed.

9. Acetylcholinesterase: Organophosphates target nerve transmission enzymes.