CATA Curricular Code Change Proposal

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Contest:	Agricultural Pest Control
Proposed by: (Name, School, Email)	Jonathan Moules – jmoules@escalonusd.org Rachel Pimentel – rpimentel@escalonusd.org Matthew Terra Escalon HS

Issue: (Describe the reason/rationale for the proposed change.)
New insect pests have recently affected crops in our state which students entering the careers of Entomology and Agricultural Pest Control should be familiar with going into this career. Color Photos are needed with extremely small insects, quarantine pests (county ag commissioners sometimes do not allow these in their county) and vertebrate pests (Deer are too big for display and other vertebrates are hard to find petrified for contests)

Please answer yes or no to ALL the questions below.

This proposal will require a contest to open out of rotation	No
The change will affect General Rules	No
The change will affect the awards needed.	No
Which JudgingCard scorecard will be used for tabulations.	705G
The proposed change will affect contest forms.	No
The proposed change will affect contest hosting site. (e.g. additional facilities, new sections, additional scoring, etc.)	No

If you answered yes to any of the above questions, you need to include the following signatures: Click here for link to CDE Contest Advisor and Coordinator list.

CATA Approved Contest Advisor's Signature	
CDE Host Site Contest Coordinator's Signature agreeing that changes are able to be accommodated by the host site.	

If you answered yes to any of the above questions, please explain.

*It is highly recommended that you, or a representative, attend the pre-conference governing board meeting to answer any questions regarding proposed curricular code changes to contests that are requested to be opened out of rotation.

Description: (Describe what is changing.)

Allow color photos for some small insects, quarantine insects and large vertebrates. Remove references to Scan Trons Forms. Add new specimans that are newer pests in California. Updated correct Orders of insects. Updated Oral Presentations selections.

Proposed CATA Code Change: (Only include the section that the proposed change pertains to – do not include the entire contest. Reference numbered section. If editing text, show new text with old text in parenthesis. For large changes, set track changes in the Word document and attach the file, with edits, to this document when submitting.)

There are proposed changes on almost all pages, so we have attached the entire contest rules. All proposed additions/subtractions are identified in red.

Instructions for Submitting Curricular Code Change

- Make sure the form is complete.
- Download and Submit this document as a PDF
    - Click File → Download → Download as a PDF
- If your proposal requires signatures make sure to contact the contest advisor and contest host. **Tip:** Docusign, Doc Hub are great sources for digital signature requests.
    - Click Here for contest Host and Advisor List
- Email completed Curricular Change Proposal **PDF** to cata@calagteachers.org by June 1st.

Warning: Make sure you add all the topics or concerns you would like to discuss at the Curricular Code CDE meeting. If it's not posted on the CATA Curricular Code Changes website by June 1st, it **cannot** be discussed.

AGRICULTURAL PEST CONTROL

Revised 06/2024

Purpose and Standards

The purpose of the Agricultural Pest Control Career Development Event (CDE) is to provide students with new insights into the science and practice of pest management with a specific emphasis on the California Agricultural Industry.

Pests are organisms that damage or interfere with desirable plants in our fields and orchards, landscapes, or wildlands, or damage homes or other structures. A pest can be a plant (weed), vertebrate (bird, rodent, or other mammal), invertebrate (insect, tick, mite, or snail), nematode, pathogen (bacteria, virus, or fungus) that causes disease, or other unwanted organism that may harm water quality, animal life, crop production, or other parts of an ecosystem.

Participants will accurately identify and apply the correct scientific and common name to pests from the categories of Gastropoda, Arachnida, Insecta, and Symphyla. Additionally, participants will give an oral presentation to a panel of industry experts explaining specimens from the categories of beneficial insects, quarantine or invasive insects, and vertebrate pests.

Participants of the Agricultural Pest Control CDE strengthen their leadership, observation, analysis, critical thinking and communication skills while also developing and exercising a competitive team spirit and building an awareness of career opportunities within the pest management industry.

Foundation Standards: 1.2, 1.2d, 2.0, 2.3, 2.4, 2.41.1, 2.41.8, 5.0, 5.1, 5.3, 9.0, 9.1, 9.2, 9.3, 9.4, 9.5, 9.6, and 11.0.

Agricultural Pathway Standards: C C2.1, C2.2, C6.1, C11.1, C12.1, C12.2, and C12.3

Contestants

Teams shall consist of three or four members. The scores of the three highest team members shall be used for the team score. All team members are eligible for individual awards.

Classes

Class	Individual Points	Team Points
Objective-Type Examination	**900**	**2700**
Oral Presentations Total	**600**	**1800**
Beneficial	200	
Quarantine/Invasive	200	
Vertebrate Pest	200	
Possible Contest Total	**1350**	**4500**

Tie Breaker

1. The team or individual scoring the highest score(s) in oral presentations will be the winner.
2. If a tie still exists, the total score of the individual or team will be used to determine the high individual or team.

3. If a tie still exists, the contestant with the highest individual Objective Exam score will be used to determine the high individual or team.

Sub-contest Awards

Sub-contest awards will be given for high teams and individuals in the following areas: Exam, Oral Presentation (based on combined beneficial, quarantine/invasive & vertebrate scores).

Rules

I. This contest shall consist of two parts: an objective type examination on 30 insects of California and oral presentations of two insects and one vertebrate pest. Up to three specimens in the Objective-Type Exam can display the actual crop damage.

II. The pest will be displayed in the most appropriate mount available. As many growth stages of the insect will be shown as is possible, including at least the stage most commonly seen in nature. No pictures are to be used except for the Quarantine, Vertebrate Pest Presentations and the following orders in the Objective-Type Examination: Acari and Mesostigmata. Photos must be printed in color.

III. Only common names and orders will be used in the contest and must be used as listed in the Code to receive credit. Scientific names are included only as an aid to help in identification study prior to the contest.

IV. Objective Type Examination

A. The time allowed shall be 30 minutes for identification on a rotation basis.

B. Contestants must check the appropriate places on the scorecard for all destructive stages of the pest. Mouth parts of the most destructive stage will be indicated by the contestant.

C. Both common name and order must be written and spelled correctly by the contestant as listed in the Curricular Activities Code for points to be given.

D. ~~Next to each specimen a~~ The contestant must select the correct host plant used by the specimen from a list of 5 potential hosts. Only one host option of the listed five will be correct, and must match the host as listed in the curricular code. ~~numbered 1-5 to be entered on the scan form.~~

E. No partial points will be given on scorecard for incomplete answers or improper identification.

F. Scoring for Objective-Type Examination will be as follows: (Note: Each area will be scored independently. For example: If common name is incorrectly written, points will be given for correctly identifying order, destructive states, etc.)

1. Common Name (10 Points)
2. Order (5 Points)
3. Destructive Stage(s) (5 Points)
4. Mouth Part~~s(s)~~ (5 Points)
5. Host~~(s)~~ (5 Points)

G. A total of 30 points can be given for each correctly identified specimen.

H. No duplicate specimens may be used in the Objective-Type Exam. For example, “Cabbageworm” can only be used once in the exam.

List from which 30 pests or insects will be chosen: (Common names only will be used in the contest).

Color photos can be used in place of specimen if marked with ***

I. Class: Gastropoda

Order: Stylommatophora - Snails & Slugs

Brown Garden Snail – Helix aspersa

II. Class: Arachnida

Order: Acari - Mites

Twospotted Spider Mite - Tetranychus urticae ***

Citrus Red Mite - Panonychus citri ***

Order: Mesostigmata

Varroa Mite – Varroa destructor ***

Class: Insecta

III. Order: Orthoptera - Grasshoppers, Crickets, & Katydids ~~Cockroaches~~.

Grasshopper - Acrididae (family)

Field Cricket - Gryllus spp.

Katydid - Various spp.

Order: Blattodea – Cockroaches & Termites

American Cockroach – Periplaneta Americana

German Cockroach – Blattella germanica

Oriental Cockroach – Blattella orientalis

Termite – Various spp.

Order: Dermaptera – Earwigs

European Earwig - Forficula auricularia

~~Order: Isoptera – Termites~~

~~Termite – Various spp.~~

Order: ~~Mallophaga~~ Phthiraptera- Chewing & Sucking Lice

Chicken Body Louse – Menacanthus stramineus

Order: Thysanoptera – Thrips

~~Thrip~~ Thrips - Thripidae (family)

Order: Hemiptera – True Bugs, Aphids, Scale, Leafhoppers, Mealybugs

Lygus Bug – Lygus Hesperus

Squash Bug - Anasa tristis

Green Stink Bug – Acrosternum hilare

Brown Marmorated Stink Bug – Halyomorpha halys

Bagrada Bug – Bagrada hilaris

Glassy-Winged Sharpshooter – Homalodisca vitripennis

~~Leaf-footed Bug~~ Leaffooted Bug – Leptoglossus phyllopus

Beet Leafhopper – Circulifer tenellus

Grape Leafhopper - Erythroneura elegantula

Cabbage Aphid - Brevicoryne brassicae

Spotted Alfalfa Aphid – Therioaphis maculata
Rose Aphid - Macrosiphum rosae
San Jose Scale – Diaspidiotus perniclosus
California Red Scale - Aonidiella aurantii
Brown Soft Scale - Coccus hesperidum
Black Scale - Saissetia oleae
Cottony Cushion Scale - Icerya purchasi
Grape Mealybug- Pseudococcus maritimus ***
Whitefly - Aleyrodidae (family) ***
Citricola Scale - Coccus pseudomagnoliarum
Bean Aphid - Aphis fabae
Green Peach Aphid - Myzus persicae
Longtailed Mealybug - Pseudococcus longispinus ***
Western Boxelder Bug – Boisea rubrolineata

Order: Lepidoptera - Butterflies and Moths
Cabbageworm – Pieris rapae
Alfalfa Caterpillar - Colias eurytheme
Western Grapeleaf Skeletonizer - Harrisina brillians
Indian Meal Moth - Plodia interpunctella
Navel Orangeworm - Amyelois transitella
Oriental Fruit Moth - Grapholita molesta
Codling Moth - Laspeyresia pomonella
Peach Twig Borer - Anarsia lineatella
Tomato Hornworm - Manduca spp.
Corn Earworm – Helicorerpa zea
Alfalfa Looper - Autographa californica
Cutworm - Noctuidae (family)
Western Yellowstriped Armyworm - Spodoptera praefica
Saltmarsh Caterpillar - Estiqmene acrea
Diamondback Moth – Plutella xylostella
Obliquebanded Leafroller – Choristoneura rosaceana
Omnivorous Leafroller – Platynota stultana
Greater Wax Moth – Galleria melloniella

Order: Coleoptera - Beetles and Weevils
Wireworm - Elateridae (family)
Alfalfa Weevil - Hypera
Bean Weevil - Acanthoscelides obtectus
Darkling Beetle – Eleodes sp.
Flea Beetle – Epitrix cucmeris
Granary Weevil - Sitophilus granarius
Sawtoothed Grain Beetle - Oryzaedhilus surinamensis
Shothole Borer – Scolytus rugulosus
Western Spotted Cucumber Beetle – Diabrotica
Western Striped Cucumber Beetle –Acalymma trivittata

Green Fruit Beetle – Cotinis texana
Tenlined June Beetle – Polyphylla decemlineata
Carpophilus Beetle – Carpophilus hemipterus
Small Hive Beetle – aethina tumida

Order: Hymenoptera - Ants, Bees, Wasps
Argentine Ant – Linepithema humilis
Harvester Ant - Pogonomyrmex sp.
Southern Fire Ant – Solenopsis xyloni

Order: Diptera – Flies
House Fly - Musca domestica
Horse Fly - Tabanus spp.
Stable Fly - Stomoxys calcitrans
Walnut Husk Fly – Rhagoletis completa
Mosquito – Culex spp.
Spotted Wing Drosophila – Drosophila suzukii
Biting Midge – Culicoides variipennis ***
Vegetable Leafminer – Liriomyza sativae ***

Order: Siphonaptera – Fleas
Flea - Pulicidae (family)

Order: Zygentoma – Silverfish, Fishmoths, Firebrats
Silverfish – Lepisma saccharina

Class: Symphyla

IV. Order: Symphyla – Symphylans
Garden Symphylans – Scutigerella immaculate ***

I. Common Host: Contest coordinator must select five possible principle hosts from the list below with one being an actual host. Contest hosts must use the exact wording of the principle hosts as listed below. Only the selections below will be used for the actual crop damage when the insect is not present.

Brown Garden Snail	Avocado, Citrus, Strawberry
Twospotted Spider Mite	All Crops
Citrus Red Mite	Citrus
Varroa Mite	Apiary
Field Cricket	Cotton, Grain
Grasshopper	All Crops
Katydid	Citrus
American Cockroach	Fermenting Fruits
German Cockroach	Food Preparation Areas
Oriental Cockroach	Decaying Organic Matter
European Earwig	All Crops
Termite	Structural Pest
Chicken Body Louse	Poultry
~~Thrip~~ Thrips	Ornamental, Tomatoes, Onions, Peppers, Citrus
Lygus Bug	Alfalfa, Cotton, Beans

Squash Bug	Cucurbits
Green Stink Bug	Peaches, Grain, Almonds
Bagrada Bug	Cole Crops
Brown Marmorated Stink Bug	Fruit, Fruiting Vegetable Crops
Glassy-Winged Sharpshooter	Grapes
Leaffooted Bug	Almonds, Pomegranates, Tomatoes
Black Scale	Almonds, Citrus, Fruit Trees, Pistachios
Brown Soft Scale	Citrus
Cabbage Aphid	Cole Crops
California Red Scale	Citrus
Cottony Cushion Scale	Citrus, Ornamentals
Grape Leafhopper	Grapes
Rose Aphid	Roses
San Jose Scale	Fruit Trees, Walnuts, Almonds
Spotted Alfalfa Aphid	Alfalfa
Beet Leafhopper	Tomatoes
Whitefly	Cucurbits, Tomatoes, Lettuce
Grape Mealybug	Grapes
Citricola Scale	Citrus
Bean Aphid	Beans, Celery
Green Peach Aphid	Vegetables, Ornamentals
Longtailed Mealybug	Nursery Stock, Ornamentals
Obliquebanded Leafroller	Cherry, Peach
Omnivorous Leafroller	Avocado, Cotton, Grapes
Western Boxelder Bug	Almonds, Grapes, Peach
Alfalfa Caterpillar	Alfalfa, Beans
Alfalfa Looper	Alfalfa, Cotton
Codling Moth	Pears, Walnuts
Corn Earworm	Corn, Tomatoes, Peppers, Lettuce, Cotton
Cutworm	Beans, Cole Crops, Corn, Cotton, Tomatoes
Cabbageworm	Cole Crops
Indian Meal Moth	Grain, Seeds, Stored Nuts
Navel Orangeworm	Almond, Pistachios, Walnuts
Oriental Fruit Moth	Cherry, Peach, Plum
Peach Twig Borer	Peaches, Almonds
Saltmarsh Caterpillar	Beans, Cole Crops, Lettuce, Celery
Tomato Hornworm	Tomatoes
Western Grapeleaf Skeletonizer	Grapes
Western Yellowstriped Armyworm	Cotton, Alfalfa
Diamondback Moth	Cole Crops
Greater Wax Moth	Apiary
Alfalfa Weevil	Alfalfa
Bean Weevil	Beans
Darkling Beetle	Cole Crops, Lettuce, Pistachios
Flea Beetle	Lettuce, Pepper, Tomatoes
Granary Weevil	Grain
Sawtoothed Grain Beetle	Grain
Shothole Borer	Avocado, Cherry, Peach, Plum

Western Spotted Cucumber Beetle	Lettuce, Cole Crops, Beans, Potatoes, Cucurbits
Western Striped Cucumber Beetle	Cucurbits
Wireworm	Tuber Roots, Corn, Cotton
Green Fruit Beetle	Peach, Plum
Tenlined June Beetle	Almonds
Carpophilus Beetle	Almonds, Pistachios, Walnuts
Small Hive Beetle	Apiary
Argentine Ant	Citrus, Grapes, Greenhouse, Apiary
Harvester Ant	Seeds
Southern Fire Ant	Almonds, Apiary
Horse Fly	Horses, Cattle
House Fly	Rotting Vegetables, Livestock, Manure
Stable Fly	Livestock
Mosquito	Warm Blooded Animals
Spotted Wing Drosophila	Berries, Cherries
Walnut Husk Fly	Walnut
Biting Midge	Livestock
Vegetable Leafminer	Tomatoes, Peas, Cucurbits, Cole Crops
Flea	Warm Blooded Animals
Silverfish	Starches, Sugar, Paper
Garden Symphylans	Cole Crops, Peppers, Tomatoes

V. Oral Presentations

A. Oral presentations will be given by each contestant; a maximum time limit of three minutes will be allowed for the oral presentation of each of three specimens which will consist of one beneficial insect, one quarantine insect/invasive, and one vertebrate pest. The contestant will have 30 seconds to view the specimen and the time will begin; after two minutes, the judge will stop the presentation if not complete at that time. Within this 3 minute time frame, the judge may ask questions that focus on an IPM (Integrated Pest Management) Program.

B. Prior to the contest, pests for oral presentations will be selected by the judges and not by the contestants.

C. One pest will be selected from each of the three categories containing six pests each, 18 total. The categories are beneficial, quarantine/invasive, and vertebrate pests.

COMMON NAME	SCIENTIFIC NAME
Beneficial:	
Honey Bee	Apis mellifera
Lacewing	Chrysopa sp.
Convergent Lady Beetle	Hippodamia convergens
Assassin bug	Zelus spp.
Mantid	Mantis religiosa
~~Big Eyed Bug~~	~~Geocoris spp.~~
Mealybug Destroyer	Cryptolaemus montrouzieri
Quarantine/Invasive:	
Japanese Beetle	~~Polillia~~ Popillia japonica
Mediterranean Fruit Fly	Ceratitis capitata "A"
Light Brown Apple Moth	Epiphyas postvittana
~~European Grapevine Moth~~	~~Lobesia botrana~~
Asian Citrus Psyllid	Diaphorina citri
Red Imported Fire Ant	Solenopsis invicta
Spotted Lanternfly	L. delicatula
Vertebrate Pests:	
Norway Rat	Rattus norvegicus
Vole (Meadow Mouse)	Microtus spp.
Pocket Gopher	Thomomys spp.
California Ground Squirrel	Otospermophilus beecheyi
Deer	O. hemionus columbianus
~~Jackrabbit~~	~~Lepus californicus~~
European Starling	Sturnus vulgaris

D. Scoring will be as follows: The contestant should have a general knowledge of the insect which would include such things as:
   1. Beneficial insects: life cycle, habits, hosts, beneficial importance.
   2. Quarantine/invasive insects: principle life cycle, habits, hosts, preventative measures taken, important, procedure taken if quarantine insect is found in California and control measures to be taken.
   3. Vertebrate pests: life cycle, habits, habitat, damage and control measures.
   4. Scoring of presentations:
      (Note: no points for improper ID)

a. Subject matter	60%
b. Logic and force	10%
c. Bearing and address	10%
d. Questions	20%

VI. References

A. Pedigo, Rice and Krell: Entomology & Pest Management, 7th edition, 2021.
B. Borrer and Delong: Introduction to the Study of Insects, 1963.
C. Comstock and Merrick: Manual for the Study of Insects.
D. Essig: Insects of Western North America.
E. Fernald: Applied Entomology.
F. Fichter, George S.: Insect Pests, A Golden Nature Guide.
G. Kono and Papp: Handbook of Agricultural Pests.
H. Metcalf: Fundamentals of Insect Life.
I. Metcalf and Flint: Destructive and Useful Insects.
J. Sweetman: Biological Control of Insects.
K. USDA 1962 Yearbook of Agriculture, Insects
    1. References used by judges include only latest published recommendation on pest control made by U.C. Extension Service and Experiment Station as summarized and presented by U.C. Entomology Department who will consider and include pest control recommendation throughout the State of California.
    2. Common Names of Insects: 1978 revisions, Douglas W.S. Sutherland, Chairman, Committee on Common Names of Insects, Entomological Society of America. Source for Purchasing Insects: Combined Scientific Supplies, P.O. Box 1446, Fort Davis, Texas 79734.
L. VEP, Pest ID Kit (Cal Poly)
M. Wildlife Pest Control Around Gardens and Homes, Cooperative Extension, University of California, Publication #21385. See your local Cooperative Extension for more information on California Pests.
N. University of California, Davis IPM Website: www.ipm.ucdavis.edu

~~Sample Scorecard:~~

~~Common Name~~
~~Order~~

~~Destructive Stage(s)~~	~~Mouth Part(s)~~	~~Principle Host~~
~~Larva~~ ~~Nymph~~ ~~Adult~~ ~~Adult Female~~	~~Chewing~~ ~~Rasping~~ ~~Sucking~~ ~~Sponging~~	~~Cotton~~ ~~Pistachio~~ ~~Almond~~ ~~Grape~~ ~~Tomato~~

~~Common Name~~
~~Order~~

~~Destructive Stage(s)~~	~~Mouth Part(s)~~	~~Principle Host~~
~~Larva~~ ~~Nymph~~ ~~Adult~~ ~~Adult Female~~	~~Chewing~~ ~~Rasping~~ ~~Sucking~~ ~~Sponging~~	~~Fermented Fruits~~ ~~Decaying Organic Matter~~ ~~Grains~~ ~~Stored Nuts~~ ~~All Crops~~

~~Common Name~~
~~Order~~

~~Destructive Stage(s)~~	~~Mouth Part(s)~~	~~Principle Host~~
~~Larva~~ ~~Nymph~~ ~~Adult~~ ~~Adult Female~~	~~Chewing~~ ~~Rasping~~ ~~Sucking~~ ~~Sponging~~	~~Onions~~ ~~Garlic~~ ~~Beans~~ ~~Cole Crops~~ ~~Lettuce~~

Contestant Name ***Contestant Number***

ID #: **1**
Common Name: _____ 10 points

Order of Pest: _____ 5 points

Destructive Stage 5 points	**Mouth Parts of Most Destructive Stage 5 points**	**Principal Host 5 points**
Larva Nymph Adult	Chewing Rasping Piercing-Sucking Sponging	Rotting Vegetables Horses Cattle Livestock Walnut

ID #: **2**
Common Name: _____ 10 points

Order of Pest: _____ 5 points

Destructive Stage 5 points	**Mouth Parts of Most Destructive Stage 5 points**	**Principal Host 5 points**
Larva Nymph Adult	Chewing Rasping Piercing-Sucking Sponging	Cucurbits Peach Citrus Pistachio Grain

ID #: **3**
Common Name: _____ 10 points

Order of Pest: _____ 5 points

Destructive Stage 5 points	**Mouth Parts of Most Destructive Stage 5 points**	**Principal Host 5 points**
Larva Nymph Adult	Chewing Rasping Piercing-Sucking Sponging	Alfalfa Grain All Crops Cotton Beans