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Mass-rearing of host insects for parasitoid production

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OVERVIEW OF THE PRESENTATION



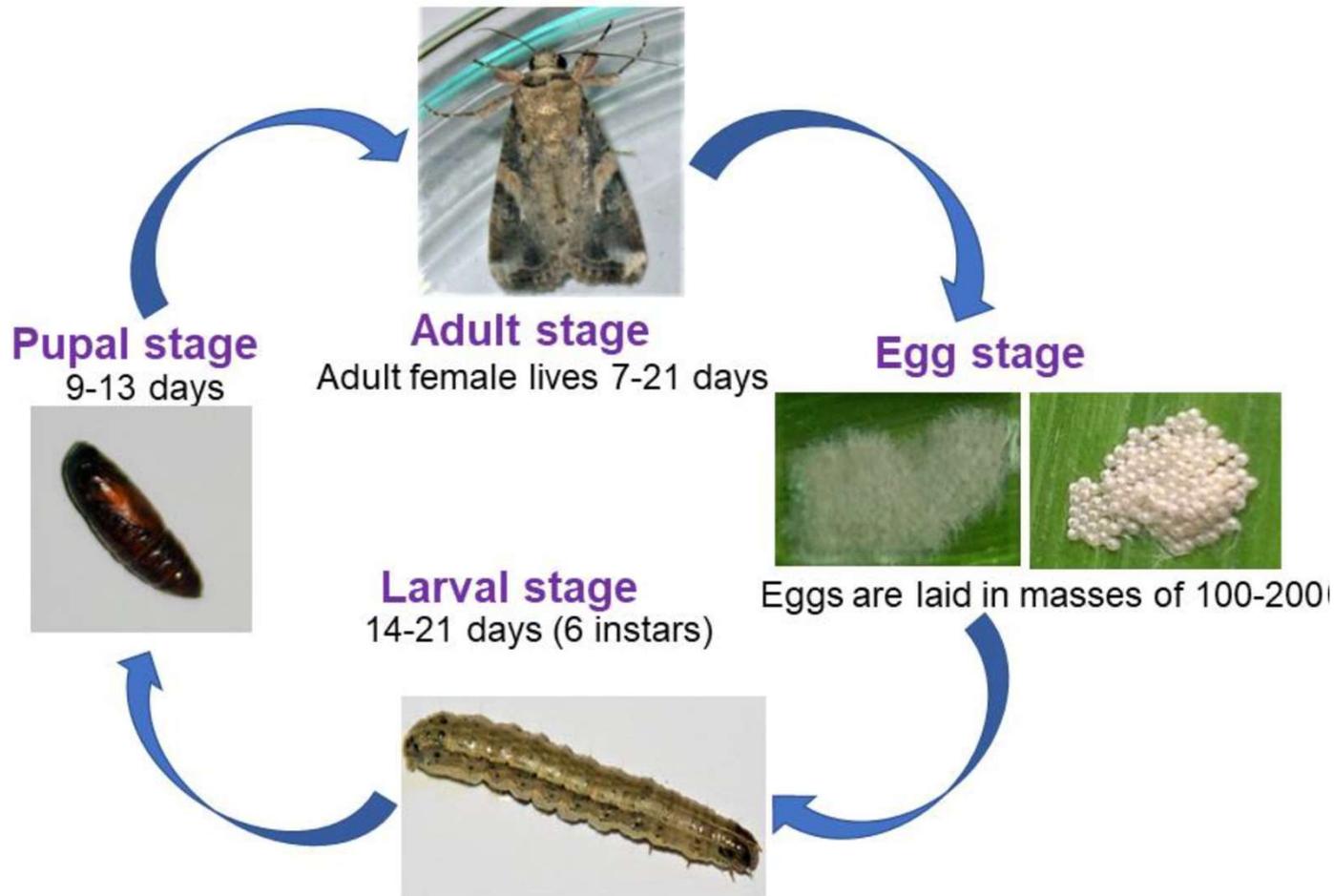
- ❖ Fall armyworm life-Cycle
- ❖ Fall armyworm Artificial diet and procedures
- ❖ Infestation (Fall armyworm early instars)
- ❖ Mass of production of fictitious hosts (*Corcyra Cephalonica*)
- ❖ Infestation (FAW early instars)



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Spodoptera frugiperda life-Cycle



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Rearing of FAW on artificial diet



FAW rearing artificial media materials

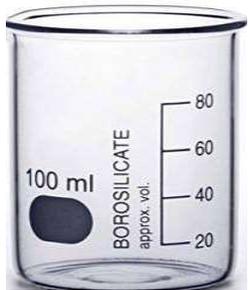


Diet ingredients for complete diet composition

Ingredient	Quantity	Purpose
Bean powder	62.5g	Source of protein
Wheat germ	50g	Source of roughage and mineral
Maize leaf powder	25g	Natural diet
Milk powder	19g	Casein protein source
Brewer's yeast	32g	Feeding attractant/induction and mineral source
Ascorbic acid	3g	Vitamin C source
Methyl paraben	2.5g	To prevent the growth of bacteria
Sorbic acid	1.5g	To prevent the growth of fungi/mold
Distilled water	500ML	Mixing the paste



Equipments/Materials used for diet preparation



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Step 1: Agar preparation



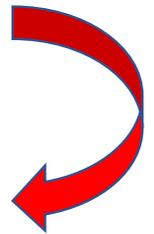
Facemask to protect dust



Dry Agar Tech III



Weighing of Agar for boiling



Settled boiled Agar



Continue stirring until it boils



Cold water for dissolving Agar



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Step 2: Preparation of the dry ingredients



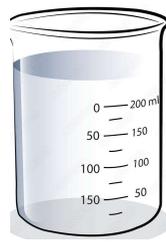
Weighing of dry ingredients



Mixing powders to
achieve a homogenous form



Evenly mixed of dry
ingredients



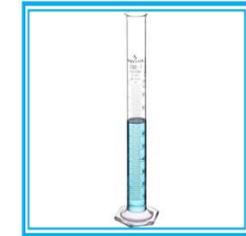
Step 3: Mixing the diet ingredients



Evenly mixed diet paste



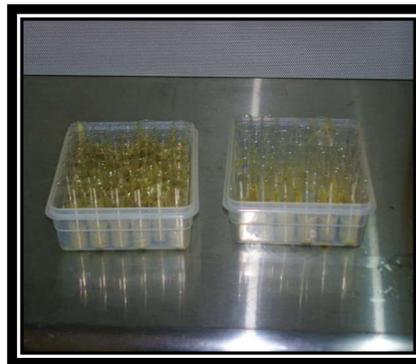
Check the Temp 60°C



40% formaldehyde



Pour content on the ketchup for dispensing



Dispensed diet on vials

Mixing in the components use of blender



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Dispense diet in vials ready for inoculation



Lab tech dispensing diet using ketchup on vials
in a hood chamber



Dispensed media ready for
inoculation cooling in the hood
chamber



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FAW neonates inoculations



Paired FAW moths
for oviposition



FAW hatchlings (neonates)

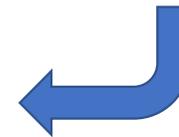


FAW L1 (neonates) feeding on
tender leaves



Camel hair brush for
inoculations

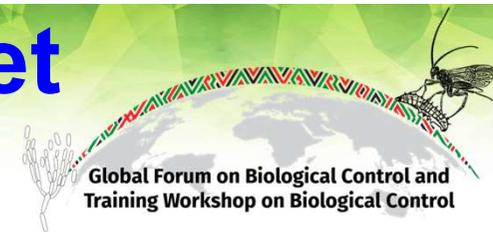
Lab tech inoculating on diet



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Mass Production on the artificial diet



FAW mass production
in vials inoculated singly



FAW fourth instars larva 25-
28 days



FAW harvested Pupa 7 days



FAW Oviposition cage



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Fall armyworm eggs collection



Oviposition cage plant substrate

Oviposition Jar

Fresh FAW harvested eggs



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Rearing of FAW on maize leaves



Mass production of FAW using maize



Fresh FAW eggs are collected on maize leaves

Harvested eggs placed on a moist jar for hatching

Natural feed 3-6 weeks crop
Maize leaves

Larva (L1-L3) feeding on
leaves



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Rearing on Maize leaves Cont'd



3rd instars in plastic
bucket holdng L3-L6
FAW larvae



3rd instars in clear
paspex cages
holding L3-L5 FAW
larvae/pre-pupa



Fresh FAW
harvested pupae



*Mass production of *Corcyra Cephalonica* (fuctitious host)*



RICE MOTH

Corcyra Cephalonica Habitat/ Biology



- *Corcyra Cephalonica* is a storage pest found in Maize/Rice silos or stores.
- *Cocrya C.* Adult mates after emergence and start laying eggs immediately
Fecundity 150-200 eggs.
- *Cocrya C.* eggs are laid on grains in clusters or singly whitish oval shaped.
- *Cocrya C.* Larva creamy white, feeds on broken grains while forming white web on the grains, it develops into five instars 23- 26 days
- *Cocrya C.* pupa forms on silken cocoons on the grains 6- 8 days before emergence it's a non feeding immotile, dormant stage DO NOT disturb this stage to avoid deformities
- The entire life-cycle can take 45-52 days depending the temperature.



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Corcyra Cephalonica Life-Cycle



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Ingredients for mass rearing of *C. Cephalonica*



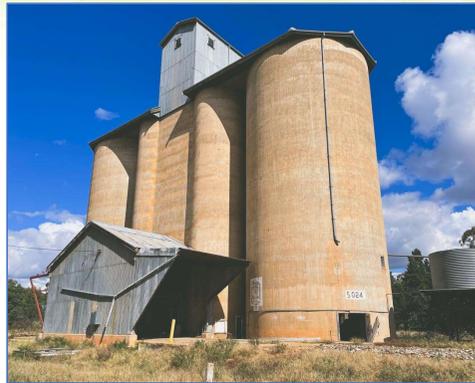
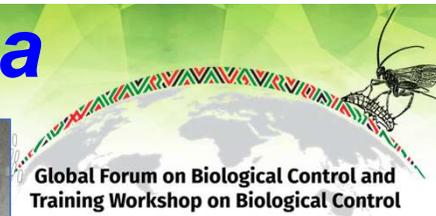
Diet meal (Broken Rice & Maize Bran)



Mixed diet ready for inoculation of
Corycra eggs



Procedure for rearing of *C. Cephalonica*



Habitat grain silos/stores



Adults Male/Female



Oviposition cages



Harvested eggs



Fourth instars heavy feeders forming web



Larval holding stage L2- L5



Rearing of *Corcyra C. larva* in buckets/Boxes



Larval holding stage L2- L5



Larval holding stage L2- L5



Corcyra Cephalonica egg Collection oviposition cages



Sleeve to access to cage

Netting Mesh



Eggs collection bucket



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