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Agriculture and Natural Resources
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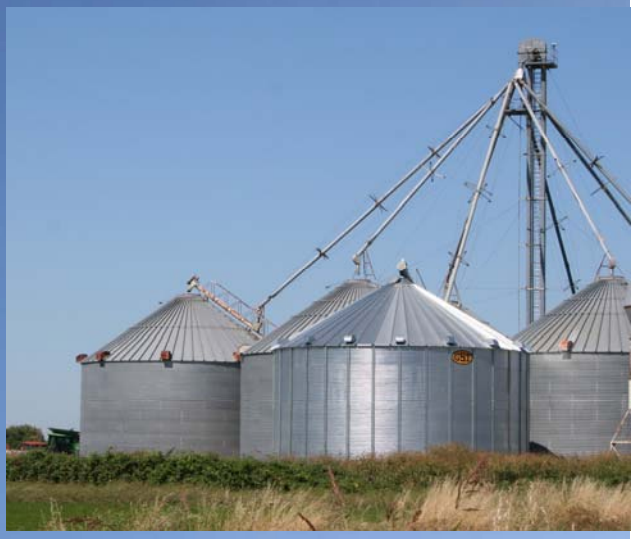

Survey of Pest Management Practices of Stored Rough Rice in California

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INSTRUCTIONS: Thanks for taking the time to complete this survey. In the questionnaire we will refer to the farm, dryer or mill, as "your operation". To answer the questions, use your experiences during storage of the 2010 rice harvest (the 2010-2011 storage period). Check or fill in the box corresponding to your answer.

SECTION I: General information

Q1. In which California county is the majority of your operation's rough rice storage structures located?

Name of county: ☐

Q2. a. During the 2010-2011 storage period, did your operation store organic rough rice?

☐ Yes

☐ No → ***Go to Q3***

b. If yes, approximately, what percentage of rough rice stored was organic?

☐ % of stored rough rice was organic

Q3. a. During 2010, did your operation farm rice?

☐ Yes

☐ No→ ***Go to Q4***

b. If yes, how many rice acres did your operation farm in 2010?

☐ acres

SECTION II: Storage structures and equipment

Q4. Does your operation have a dedicated storage structure for carry-over grain? Carry-over grain refers to rough rice harvested during the previous year that is still in storage.

☐ Yes

☐ No

Q5. a. Does your operation have an aeration controller system in at least one of your storage structures? An aeration controller system automatically starts and stops fans to dry and maintain rice at a desired moisture content.

☐ Yes→ ***Go to Q6***

☐ No

b. If no, how do you decide when and for how long to aerate? Check all that apply.

☐ Outside temperature only

☐ Outside temperature and outside relative humidity

☐ Aeration equipment manufacturer guidelines

☐ Other:

Q6. What does your operation use to monitor rough rice temperature during storage? Check all that apply.

☐ My operation does not monitor rough rice temperature during storage

☐ Handheld thermometer

☐ Temperature probe

☐ Temperature cables within storage structure

☐ Other:

Q7. In the table below, indicate the type, number and maximum capacity (in cwt) of the storage structures your operation uses and the amount of rough rice stored (in cwt) during <u>storage of the 2010 rice harvest</u> (the 2010-2011 storage period).

Type	Number of structures	Sum of maximum capacity of all structures of this type (cwt)	Approximate amount of rice stored during the 2010-2011 storage period in this type of structure (cwt)
Round metal bins			
Concrete silos			
Flat storage			
Other:			

SECTION III: Rough rice inspections

Q8. Does your operation inspect rough rice during storage?

☐ Yes

☐ No → ***Go to Q13***

Q9. a. During summer, how often does your operation inspect the rice during storage? Check only one.

☐ Once a week

☐ Every 2 weeks

☐ Once a month

☐ Every 2 to 3 months

☐ Every 4 to 6 months

☐ Other:

b. During winter, how often does your operation inspect the rice during storage? Check only one.

- ☐ Once a week
- ☐ Every 2 weeks
- ☐ Once a month
- ☐ Every 2 to 3 months
- ☐ Every 4 to 6 months
- ☐ Other:

Q10. How does your operation inspect the rice during storage? Check all that apply.

- ☐ By looking at the surface of grain mass
- ☐ By looking at samples scooped from the surface
- ☐ By looking at samples taken with a probe
- ☐ By measuring the temperature of the rice
- ☐ Other:

Q11. What does your operation check for when inspecting the rice during storage? Check all that apply.

- ☐ Moisture content
- ☐ Temperature
- ☐ Insects
- ☐ Spoilage
- ☐ Odors
- ☐ Other:

Q12. Does your operation use a guideline or rule to determine if insects are a problem during storage?

☐ Yes
☐ No

Q13. When insects become a problem during storage, what action is your operation likely to take? Check all that apply.

☐ Aerate
☐ Spray an insecticide to the surface of the grain mass
☐ Spray an insecticide in the area surrounding the storage structure
☐ Fumigate the grain
☐ CO_2 treatment
☐ Heat treatment
☐ Other:

Q14. Does your operation receive <u>dry</u> rough rice from others (producers or dryers)?

☐ Yes
☐ No → ***Go to Q21***

Q15. Does your operation inspect the <u>dry</u> rough rice received from others at the time it is delivered?

☐ Yes
☐ No → ***Go to Q21***

Q16. How does your operation inspect the <u>dry</u> rough rice received from others at the time it is delivered? Check all that apply.

☐ By looking at samples taken with a probe
☐ By looking at samples taken from the surface of grain mass
☐ By looking at a sample taken while dumping the grain
☐ Other:

Q17. When inspecting the dry rough rice received from others at the time it is delivered, what does your operation look for? Check all that apply.

- ☐ Moisture content
- ☐ Temperature
- ☐ Test weight
- ☐ Broken kernels
- ☐ Foreign material
- ☐ Damaged grain
- ☐ Insects
- ☐ Spoilage
- ☐ Odor
- ☐ Others:

Q18. Does your operation use any guidelines or thresholds to determine if the dry rough rice received from others has an insect problem at the time it is delivered?

- ☐ Yes
- ☐ No

Q19. When the dry rough rice received from others has an insect problem at the time it is delivered, what action is your operation likely to take? Check all that apply.

- ☐ Return lot to owner for fumigation
- ☐ Fumigate lot
- ☐ Accept lot and do nothing
- ☐ Other:

Q20. During the 2010-2011 storage period, did any dry rough rice received from others have an insect problem at the time it was delivered?

- ☐ Yes
- ☐ No

SECTION IV: Pest management practices

Q21. a. Which of these are <u>the three most important</u> rough rice storage problems you have had during the past five years? Number your selections 1 to 3, use "1" for the largest problem, "2" for the second largest problem and "3" for the third largest problem.

☐ Grain temperature	☐ Insects
☐ Grain moisture	☐ Odor
☐ Spoilage	☐ Rodents

b. If you did not choose insects as a problem, *go to Q22*. If you chose "Insects" as one of the three most important problems you have had during the past five years, name up to three specific insects that have caused you problems.

Insect 1: _____

Insect 2: _____

Insect 3: _____

or

☐ I don't know the name of the insects

Q22. During storage of the 2010 rice harvest (the 2010-2011 storage period), did your operation conduct any of the following practices?

Yes	No	
☐	☐	Thoroughly clean residue from storage structures before storing new rice
☐	☐	Treat structures with an insecticide before filling them with grain
☐	☐	Clean the new grain before putting it in storage (removing fines)
☐	☐	Use a grain spreader when filling a bin with new grain
☐	☐	Treat the new grain with an insecticide as it was being put in storage
☐	☐	Level surface of the grain mass after the last load was placed into storage
☐	☐	Apply insecticide to surface of grain mass while grain was in storage
☐	☐	Move grain from one storage structure to another
☐	☐	Mix grain within a storage structure
☐	☐	Clean up grain spills and other grain residue around the storage structures
☐	☐	Remove plant and animal debris around the storage structures
☐	☐	Apply an insecticide to the area surrounding storage structures
☐	☐	Fumigate the stored grain
☐	☐	Use insect traps (sticky traps, pheromone traps, pitfall traps, etc)

Q23. During storage of the 2010 rice harvest (the 2010-2011 storage period), was all or some of your operation's stored rough rice fumigated?

☐ Yes

☐ No → ***Go to Q27***

Q24. Who did the majority of the fumigations? Check only one.

☐ My operation

☐ A commercial fumigation service

Q25. Estimate your total cost of fumigation.

$ ☐

Q26. Why was the rough rice fumigated? Check all that apply

- ☐ Insects were found during sampling of stored rough rice
- ☐ Insects were found when rice was being delivered to dryer/mill
- ☐ Rough rice is always fumigated at some time during storage
- ☐ Rough rice is always fumigated before taking it out of storage
- ☐ Other: _____

SECTION V: Economic information

Q27. a. During storage of the 2010 rice harvest (the 2010-2011 storage period), did your operation have any economic losses caused by insects infesting stored rough rice?

- ☐ Yes
- ☐ No→ ***Go to Q28***

b. If yes, estimate the dollar value of economic losses caused by insects.

$ _____

Q28. a. During storage of the 2010 rice harvest (the 2010-2011 storage period), did your operation have any economic losses caused by spoilage of stored rough rice?

- ☐ Yes
- ☐ No→ ***Go to Q29***

b. If yes, estimate the dollar value of economic losses caused by spoilage of stored rough rice.

$ _____

Q29. a. Does your operation own and operate a column dryer?

☐ Yes

☐ No→ ***End of survey. Enter comments in the box below.***

b. If yes, <u>estimate</u> the energy use of your column dryer. In the table below, please complete the row or rows corresponding to the energy source your column dryer uses. For drying of the 2010 crop, estimate the total units of energy used, cost ($) and amount (cwt) of rough rice dried.

Energy source	Total energy units used to dry 2010 crop	Total cost to dry 2010 crop ($)	Total amount of 2010 crop dried (cwt)
Propane	gallons		
Natural gas	therms		
Electricity	kilowatt-hours		

Thank you for your cooperation completing this survey! If you have any thoughts, concerns, suggestions or questions regarding any of the topics in the survey or the survey itself, please write them in the box below.

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