YC459 was elucidated using fresh and senescent (4days and 14days after flowering, respectively) floral tissues of zucchini squash (*Cucurbita moschata* Duchesne). The spores of *T. harzianum* YC459 were produced more on agar and liquid culture media supplemented with 5% dry powder of senescent floral tissues than fresh tissues during 15days. Mycelial growth was also much better in the media with senescent tissues than with fresh tissues. Enzyme activities of amylase, polygalacturonase and cellulase in the liquid media which might be involved in the colonization of tissues by *T. harzianum* YC459 were compared. The activities of three enzymes were much higher in the media with senescent floral tissues than with fresh floral tissues reaching to the maximum during 9 to 12days of incubation. Based on the results, the removal of senescent floral tissues, a possible inoculum source of the pathogen, may be another mechanism for biocontrol of gray mold rot of vegetables by *T. harzianum* YC459.

2-10. Effects of Seed-treatment Fungicides on Bakanae Disease of Rice

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Bakanae disease, caused by *Gibberella fujikuroi* (anamorph : *Fusarium moniliforme* J. Sheldon), a typical seed-borne disease of rice occurs from nursery to paddy fields. Consequently, chemical seed disinfectants is the most efficient control method. Several seed treatment methods with various fungicides were attempted to inhibit disease. Spray and 24 hrs immersion of seeds using prochloraz emulsion reduced disease infection and the control value were 99.3 and 100%, respectively. In contrast, dressing to wet seeds thiophanate-methyl+thiram wp and benomyl+thiram wp reduced disease infection more effectively than 24 hrs immersion of seeds. However, dressing of carpropamid+imidacloprid+fludioxonil wp to wet seeds did not reduced disease as well as wettable liquid of fludioxonil. The results suggest that the bakanae disease might be disinfected effectively by 24 hrs immersion of seeds in prochloraz emulsion and seed dressing of fungicides.

2-11. Comparisons of inorganic amounts in paddy fields, rice straw and seed with varying severity of brown spot caused by *Cochliobolus miyabeanus*

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In order to elucidate influence of nutritional status on rice brown spot caused by *Cochliobolus miyabeanus*, rice cultivation soils and rice straws were collected from paddy fields where rice brown spot occurred severely, moderately, a little and none respectively. Rice plant materials were analyzed to measure inorganic nutrients in rice straws and rice seeds. Analysis of chemical properties of rice paddy soil showed that EC and contents of available phosphate, cation and silicic acid in soil with severe infections were lower than those in healthy soil. This result

suggests that amount and holding capacity of nutrient contents in soils collected from paddy field with infection of *C. miyabeanus* are relatively low compared to those in soils collected from healthy paddy field. Analysis of inorganic nutrients in rice straws showed that amount of macronutrient elements such as silicic acids, available phosphate and total nitrogen, and micronutrients such as copper, iron and zinc in rice straws from paddy field with infection were lower than those in healthy soil. Especially amount of iron and silicic acid were very low in rice straws from paddy field soils with infection. Amount of inorganic nutrients such as iron and zinc in rice seeds was the same trend as those of rice straws. These results showed that one of major factors affecting rice brown spot was amount of nutrient contents in soil and rice straw.

2-12. Post-infectional Activities of Non-systemic Fungicides Against Apple White Rot

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In order to develop an effective spray program for control of apple white rot with reduced use of fungicides, the control efficacy of several fungicides that has been intensively used for control of the disease was assessed. They were sprayed on the same tree with 15 day interval from late May to early August. Just prior to and after each spray, 100 fruits were bagged with two layered fruit bag to limit the chemical application in only one time, and the disease incidence and latent infection frequency on the bagged apples were examined. Some fungicides such as folpet, iminoctadine-triacetate and azoxystrobin showed a high post-infectional activity even though the former two are non- systemic. Folpet suppressed symptom development, iminoctadine-triacetate reduced infection frequency and azoxystrobin acted in both ways. When those fungicides were ! ! adopted in a spray program, once in a cropping season, their post-infectional activity became much greater. This activity shown by the non-systemic fungicides was supposed to be derived from the peculiar infection process of the white rot fungus of which the pathogen is usually remain latent in the corked cells of lenticel until the apple reach mature stage.

2-13. Occurrence of severe soybean-sprout rot caused by Pythium deliense in the recirculated production system

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Severe soybean-sprout rot was found at the mass productive factory in 2000 and 2001 and it caused 10-20% loss of the production. *Pythium* sp. was isolated almost 90% by potato dextrose agar from rotted root and hypocotylsof the sprouts. And the pathogencity tests using test tubes with 2% water agar and small containers (30 x 30 x 50 cm, WxLxH) cultivation were shown a similar rot on roots and hypocotyls. The fungal mycelium grew rapidly on the water agar and it prevented the seed germination. Density of the *Pythium* sp. in the recycled water system at the