

## A Practical Guide to Containment Plant Biosafety in Research Greenhouses, ISB Virginia Tech 2008

<b>General Considerations</b>	N/A	Conform	Non- Conform	Comments
1. Do SOPs establish proper techniques for handling recombinant DNA/transgenic material?				
2. Was a copy of SOPs given to the inspecting official?				
3. Does the facility have an institutional biosafety committee? (Indicate name and phone number of the chair of the biosafety committee in the SOF)				
4. Is the biosafety committee chair aware that this research involves USDA regulated transgenic material?				
5. Is the scientist who is conducting the research listed on the permit application? (Please list the names of researchers, including project leader, in the SOF.)				
6. Does the scientist conducting the research have a copy of the permit application and SOPs? (Please verify that they have contact information for BRS.)				
7. Do SOPs, or other documents, include detailed instructions for reporting and correcting unintended environmental release?				
8. Are other personnel working on this project trained in accord with written SOPs?				
9. Does the responsible researcher have records that other personnel working on the project have received proper training?				
10. Will movement of the regulated material occur within the facility? (Yes or N/A) (Please list areas, by room number, greenhouse number/letter, or growth chamber serial number, which will be used for this research in SOF)				
11. Has the responsible researcher provided the inspecting official with a copy of floor plans indicating which areas will be used for this research? (If the answer is No, please draw a floor plan or obtain one upon follow-up)				
<b>Facility Security and Prevention of Commingling</b>				
12. Is the general area secure from public access?				
13. Can individual laboratories be locked?				
14. Are there signs on the walls or doors of individual rooms for research stating that USDA Regulated Material or Genetically Engineered Organisms are present?				
15. Are there signs posted stating, "Authorized Personnel Only"?				
16. Are there lockable cabinets or storage areas for storing all regulated materials? (seeds, tissue cultures, microbial material, etc.)				
17. Is each storage cabinet/area identified as containing USDA Regulated Material or Genetically Engineered Organisms? (If the answer is No to 14, 15 or 17, indicate in SOF when sign(s) will be posted.)				
18. Will regulated material be clearly marked by color coding and/or labeling?				
19. Will markings or labeling be clear and durable? (Ask to see an example)				
20. Do SOPs clearly specify methods for clean-up/disposal of spilled seed/regulated material?				
21. Do SOPs cover the cleaning or disposal of equipment, including personal protective equipment, such that regulated materials are not inadvertently released into the environment? (seeds, pollen, microbes, etc.)				

22. Do SOPs clearly specify methods to be used for devitalization and disposal of regulated material after work with material is completed? (Please specify these methods in the SOF)				
23. Will non-transgenic sexually compatible species be absent from research areas during the entire length of the trial?				
24. If the answer to above question is No, will marking or labeling be sufficient to segregate regulated material from non-transgenic				
25. If the answer to question 23 is No, will transgenic plants/organisms be prevented from reaching sexual maturity during the entire length of the trial?				
26. Are records (log or inventory) maintained regarding receipt, propagation and destruction of regulated material?pread the disease.				
Seeds need to be acid- or bleach-treated to be rid of TMV.				
<b>Laboratory</b>				
27. Does this trial/research involve use of laboratories? (If the answer is No, skip to the section on Growth Chambers)				
28. Will seeds, tissue cultures, plant material, etc. be grown or germinated in the laboratory? (Yes or N/A)				
29. Is the area free of any cracks or irregular surfaces that could trap seeds?				
30. Is the area free of obvious places that seed may be lost or lodged?				
31. Will regulated material work be conducted in a biosafety cabinet or hood? (Yes or N/A)				
32. Is the entire laboratory free of any water drains?				
33. If the answer to above question is No, do the drain(s) flow into a special waste trap?				
34. Are water drains screened with an appropriate screen size for the material being used in this research?				
35. Are methods for disposal/devitalization of collected seeds/material clearly specified in SOPs? (Please indicate these methods in the SOF)				
<b>Growth Chamber</b>				
36. Does this trial/research involve use of Growth Chamber(s)? (If No, skip to the section on Greenhouses)				
37. Can the growth chamber(s) be locked?				
38. Is the growth chamber dedicated for use with transgenic material?				
39. Will this transgenic research be the only work being done in the growth chamber?				
40. Will plants/microbes be prevented from reaching sexual maturity in the growth chamber?				
41. If the answer to above question is No, does the venting/HVAC system likely prevent flow of pollen/spores into the environment outside of the facility?				
42. Is the growth chamber free from any water drains?				
43. If the answer to above question is No, do the drains flow into a special waste trap?				
44. Are water drains screened with an appropriate screen size for the material being used in this research?				
45. Are methods of disposal/devitalization of collected seeds/material clearly specified in SOPs? (Please indicate these methods in the SOF)				

Greenhouse				
46. Does this trial/research involve use of Greenhouse(s)? (If the answer is No, skip to the SOF section)				
47. Is the greenhouse accessible to authorized personnel only?				
48. Is the greenhouse manager aware that this research involves USDA regulated transgenic material?				
49. Is the greenhouse manger aware of the Permit conditions? (SOPs, Standard Permit Conditions, Supplemental Permit Conditions)				
50. Do greenhouse doors and all alternate exits have locks?				
51. Does the greenhouse have a double door entry system or a head-house to help prevent escape of regulated material into the surrounding environment?				
52. Will plants be prevented from reaching sexual maturity in the greenhouse?				
53. If the answer to above question is No, will flower bagging or removal be used to prevent pollen flow?				
54. If the answer to above question is No, is the vent and exhaust fan/HVAC system likely to prevent flow of pollen/seeds/spores to the surrounding environment?				
55. Will non-transgenic sexually compatible species be absent from the greenhouse during the entire length of the trial?				
56. If the answer to the above question is No, will marking or labeling be sufficient to segregate regulated material from non-transgenic material?				
57. Will soil used in this research be re-used again? (Please list method of soil treatment/devitalization or disposal in the SOF)				
58. Do roof and/or side vents open manually? (Yes or N/A)				
59. Do roof and/or side vents open automatically? (Yes or N/A)				
60. If the answer to above question is Yes, do greenhouse controls have an over-ride to prevent vents from opening automatically?				
61. Are roof and/or side vents screened with an appropriate screen size to prevent movement of most insects?				
62. Are greenhouse exhaust fans enclosed in screen structures? (Yes or N/A)				
63. Do exhaust fans have louvers that are working properly? (close automatically when fans turn off, well lubricated, intact)				
64. Is all greenhouse screening generally intact without noticeable holes or gaps?				
65. Is the integrity of the greenhouse walls, floors and doors adequate to exclude rodent/varmint vectors?				
66. Does the greenhouse have "sticky" board or tape type insect traps?				
67. Does the greenhouse have black light traps?				
68. Does the greenhouse have other kinds of traps to prevent insect or rodent pollen/seed vectors? (Please list other types of traps in the SOF)				