



Cornell University
Office of
Research Integrity and Assurance

Institutional Biosafety Committee

Cornell University
395 Pine Tree Road
Suite 320
Ithaca, NY 14850
t. 607-255-7219
f. 607-255-0758
email. dad3 @cornell.edu

BL2-P Findings on Requirement that all transgenic plant work or transgenic microbes or viruses associated with plants requires BL2-P containment in the greenhouse or growth chamber:

Purpose : Re-visit requirement that all work with transgenic plants or work using recombinant or synthetic nucleic acid molecules (r/sNA) in plants in the greenhouse or growth chamber must be done at BL2P. All work with microbes or viruses associated with plants requires BL2-P containment in the greenhouse or growth chamber.

Final Recommendation:

Continue with requirement that all transgenic plant work should be at BL2-P containment or higher but if the research meet necessary requirements to be BL1-P+ and there were space issues the PI could petition the IBC to downgrade their research to BL1-P+. When reviewing plant research we should keep a list of MUA's that meet the criteria to be BL1-P+ in case of housing shortage.

All work with r/sNA and microbes or viruses associated with plants requires BL2-P containment as specified in the NIH guidelines

Back ground on NIH guidelines discussed:

Section [III-D-5](#) and Section [III- E-2](#) of the NIH guidelines describe experiments with whole plants and the physical containment levels for experiments with r/sNA. [Appendix P](#) of the NIH Guidelines also specify the physical and biological containment conditions and practices required for greenhouse experiments for each biosafety level.

It was questioned whether designation of transgenic plants as BL1-P+ housed with non-transgenic plants could be treated as non- transgenic as this would free up space, decrease cost and labor but per [NIH guidelines Appendix P](#) this is not an acceptable practice.

Appendix P-II-A-1-e. Concurrent Experiments Conducted in the Greenhouse (BL1-P)
Appendix P-II-A-1-e-(1). Experiments involving other organisms that require a containment level lower than BL1-P may be conducted in the greenhouse concurrently with experiments that require BL1-P containment, provided that all work is conducted in accordance with BL1-P greenhouse practices.

The committee discussed: are there cases where it would still be applicable to designate research as BL1-P+?

Due to space considerations and older greenhouses do not meet BL2-P containment requirements so it would be advantageous to be able to consider work to be BL1-P+.

The subcommittee concurred that this would be possible if the work involved transgenic plants only, but this policy would affect few MUAs or programs. It was decided that going forward we would consider this when reviewing plant work and keep a list of MUA's that could be downgraded to BL1-P+. If space issues occur this would help in designating space.

The subcommittee defined BL1-P+ practices as following Appendix P-II-A practices plus the following:

Greenhouse manual, report any greenhouse accident involving the inadvertent release of transgenic plant to the Institutional Biosafety Committee, use Cornell greenhouse signage currently used for BL2-P.

Following is an example of assigning biosafety level from [Plant Biosafety in Research Greenhouses - A Practical Guide to Containment](#)

SECTION III. Biosafety Levels

TABLE 2. Suggested Criteria for Assigning Biosafety Levels

CRITERIA	TRANSGENIC PLANTS	TRANSGENIC MICROBES		TRANSGENIC ARTHROPODS AND THEIR MICROBES
		Exotic	Non-Exotic	
Not a noxious weed or cannot outcross with one	BL1-P			
Not easily disseminated			BL1-P	
No detriment to environment		BL2-P or BL1-P +	BL1-P	BL2-P or BL1-P +
Noxious weed or can interbreed with weeds	BL2-P or BL1-P +			
Contains complete genome of non-EIA	BL2-P or BL1-P +			
Contains genome of EIA	BL3-P or BL2-P +			
Treated with an EIA	BL3-P or BL2-P +			
Detriment to environment			BL2-P or BL1-P+	BL3-P or BL2-P +
EIA with detriment to environment	BL3-P or BL2-P +			
May reconstitute genome of infectious agent <i>in planta</i>	BL3-P or BL2-P +			
Contains vertebrate toxin	BL3-P	BL3-P	BL3-P	
PMP & PMI	BL3-P			
Select Agent plant pathogens	BL3-P	BL3-P	BL3-P	BL3-P+ or BL4-P

*EIA – Exotic Infectious Agent