Herbicide Symptomology Experiment

An experiment will be conducted in the greenhouse to evaluate herbicide injury to crops and weeds treated with selected soil-applied (preemergence) and foliar-applied (postemergence) herbicides. You will be responsible for preparing a lab report describing in detail how the experiment was conducted and the specific symptoms observed on the crops and weeds for each of the herbicides. In addition, you should relate the symptoms observed to the modes of action and translocation characteristics of the herbicides evaluated. This information can be found in the lecture notes and in the Herbicide Symptomology and Surfactant Technology Lab. Take the time to write down all relevant information related to the experiment (planting date, spray volume and pressure, nozzle type and size, soil conditions, plant size, etc.) as these will be necessary to include in your report.

Protocol
Specific details concerning the experiment are as follows:

Crops Sprayed	Weeds Sprayed
Corn	Ivyleaf and pitted morningglory
Cotton	Hemp sesbania
Soybeans	Johnsongrass

Herbicide Chemical Families and Specific Herbicides and Rates:*

Benzoic acid Clarity / dicamba (0.25 lb ai/A POST)	**Miscellaneous** Command / clomazone (1.0 lb ai/A PRE) Roundup WeatherMax / glyphosate (0.75 lb ai/A POST)
Benzonitrile Buctril / bromoxynil (0.5 lb ai/A POST)	**Phenoxy** 2,4-D (0.5 lb ai/A POST)
Bipyridylium Gramoxone Max / paraquat (0.47 lb ai/A POST) + NIS	**Phenyl urea** Cotoran / fluometuron (1.2 lb ai/A PRE)
Cyclohexanedione Select / clethodim (0.094 lb ai/A POST) + COC	**Pyridazinone** Zorial / norflurazon (1.0 lb ai/A PRE)
Dinitroaniline Prowl / pendimethalin (1.0 lb ai/A PRE)	**Sulfonylurea** Beacon / primisulfuron (0.036 lb ai/A POST) + NIS

Diphenylether Reflex / fomesafen (0.38 lb ai/A POST) + NIS	**Triazine** Aatrex / atrazine (1.5 lb ai/A PRE)
Imidazolinone Pursuit / imazethapyr (0.063 lb ai/A POST) + NIS	**No herbicide (nontreated control)**

* COC = crop oil concentrate at 1 qt/A; NIS = nonionic surfactant at 0.25% (v/v).

Procedure

Each of the crops and weeds (six species) will be planted in rows together in individual flats filled with a JiffyMix-soil mixture. Two flats will be planted for each herbicide treatment. Individual herbicides will be applied to the two flats using the spray chamber located in the weed science greenhouse. Crops and weeds will be observed 14 and 21 days after preemergence (PRE) herbicide application and 7 and 14 days after postemergence (POST) application. Take time to carefully examine all herbicide treatments and record observations on both crops and weeds. Take notice of when and if plants emerge following application of PRE treatments and also the injury symptoms observed and when they are expressed, i.e. very slowly or very quickly. For the final observation relate plant biomass present for the treated plants to that of the respective nontreated controls.

Report

Your report should be typed. It should have a brief Introduction explaining why the experiment was conducted and a Materials and Methods section explaining how the experiment was conducted to include planting date, spray volume and pressure, nozzle type and size; when herbicide treatments were applied; crop and weed size at time of application; and what data were collected.

In the Results section you should describe the mode of action of each herbicide and the specific symtomology observed on each crop and weed, i.e. plant height reduction, plant discoloration, abnormal growth, etc. You are welcome to take digital photos to include in your report but this is not required. You should relate the symptoms observed to the herbicide's mode of action and translocation characteristics.

Also, in the Results section you should discuss how each specific herbicide is used in crop production. A good place to find this information is to look on the weed science web site (www.lsuagcenter.com/weedscience) under "Related Publications" and go to "Statewide Weed Control Recommendations".