Ag Discovery 2013 Evaluation

1. What were the strengths of the plant pathology laboratories?
2. How could the plant pathology labs be improved?
3. Rank the following lab activities/experiments. A score of 1 being the highest and 14 being the lowest.
    a. Draw a scientist
    b. TMV experiment
    c. Symptoms/Signs plant samples
    d. Fungicide Sensitivity experiment
    e. Bacterial streaming
    f. Fun with microbes
    g. Spore trapping experiment
    h. Garlic experiment
    i. Disease tour around NC State campus
    j. Geocaching
    k. Pectinase experiment
    l. Plant disease and insect clinic tour
    m. Strawberry DNA extraction
4. What was the most important thing you learned in the lab sessions?
5. Did the Ag Discovery program introduce you to some new fields in agriculture? If so, what?
6. How has the Ag Discovery program changed or focused your career plans?
7. Is there anything you wanted to learn that was not presented? If so, what information was lacking?
8. What agriculture topic do you want to learn more about?
9. What were Kestrel's strengths as an instructor?
10. What were Kestrel's weaknesses as an instructor?
11. Did the Ag Discovery program meet your expectations? Choose one.
    a. The program was below expectations
    b. The program met my expectations
    c. The program exceeded my expectations

Other Comments:

Student Evaluation Summary:

1. What were the strengths of the plant pathology laboratories?
    - The labs had easy access to the materials needed for them.
    - The labs were very sanitary and very well packed with materials and is a very spacious area!
    - They were educational as well as enjoyable and engaging unlike the field trip that were just fun
    - I learned about different plants and how to use a microscope correctly. Also about plant pathology.
    - I learned how to better identify plants and plant pathogens
    - What we learned about the biology of the plants related to large scale agriculture. They were fun and often had unexpected or surprising results.
    - Most were not boring
    - Good resources, diverse experiments, and good foundation of disease concepts.
    - Wide variety of experiments and topics covered, safely done, and exciting to us as they all were hands on and involving.
    - The labs were simple but informative, giving a high level of information. They built up nicely on each other.
    - I learned how to better use the microscope. I had a better experience using lab tools.
    - Fun
    - Plant disease, bacteria, fungi, and insects
    - Everything, very user friendly and up to date
    - Up to date
2. How could the plant pathology labs be improved?
    - N/A
    - N/A
    - Have more of them!
    - N/A
    - N/A
    - We could use different groups every time and not just our project groups.
    - Occasionally it got slow, so maybe have some activities to fill in the free time.
    - If all the sessions we had were plant pathology
    - Pictures of the lab experiment before and after completing the experiment so we know what to expect.
    - I suggest shorter times of waiting. Our time was spent waiting for others to finish their experiments.
    - There should be more inspection material other than a microscope
    - Stronger substances for more growth
    - None
    - New lab chairs

- More space

3. Rank the following lab activities/experiments. A score of 1 being the highest and 14 being the lowest.

Lab Experiment/Activity	Student Evaluation Mean
Draw a scientist	6.7
TMV experiment	6.1
Symptoms/Signs plant samples	6.4
Fungicide Sensitivity experiment	6
Bacterial streaming	4.5
Fun with microbes	6.8
Spore trapping experiment	5.7
Garlic experiment	5.8
Disease tour around NC State campus	6.5
Geocaching	7.6
Pectinase experiment	7.3
Plant disease and insect clinic tour	7.8
Strawberry DNA extraction	5.9

4. What was the most important thing you learned in the lab sessions?

- To keep an open mind, and you have to do the replications for experiments, and all about different plant pathogens
- The most important thing I learned in the sessions was understanding how plants are just like people, they get sick, and have to defend themselves.
- The basics of plant pathology and how plants get infected, what it looks like, and why it's happening.
- I learned my way around a lab and symptoms/signs of plant disease.
- Invasive species
- Fungi are as important as viruses, bacteria, etc. in plant pathology
- How to parafilm plates correctly
- Put dates on your petri dishes
- Replication of the experiments to provide quality and accurate data
- I learned overall, information on plant pathology-something I knew very little of before.
- The symptoms and signs of plant disease
- About *Phytophthora*
- Plant disease
- I learned so much, it is hard to just pick one as the most important
- Lab is fun

5. Did the Ag Discovery program introduce you to some new fields in agriculture? If so, what?

- Yes, I had no idea environmental engineering worked so closely with agriculture.
- The ag discovery program introduced me to new fields in agriculture including working with wildlife services, veterinary services, SITC, and CPHST.

- Yes, it introduced me to how closely related botany and entomology were and the importance of plant pathologists
- I never knew there were officers in the agriculture field
- Yes, such as USDA
- Yes, gameland wildlife services, risk analysis, imports and sales inspections, lobbyists.
- Plant pathology
- I had not considered wildlife services or veterinary medicine as a part of agriculture, so that was more of an introduction.
- Epidemiology. I never really considered the effects of pathogens on plants since I am focused on human pathogens. This opened my eyes.
- Yes, most all fields I was introduced to were unknown
- Yes, plant pathology, entomology, epidemiology, and biomedical.
- Yes, fungicides
- No
- Yes, too many to even name (plant pathology was probably the most exciting)
- Yes, biotech, and animal science

6. How has the Ag Discovery program changed or focused your career plans?

- To not settle on one major immediately
- The ag discovery program opened my eyes to several different career paths that I may take into consideration when thinking about areas of study.
- I am more open to a career in plant pathology now that I know a lot more about it than I did before
- It has definitely changed my career plans.
- N/A
- Widening my ideas of what careers were available in agriculture.
- I've come into contact with some people focused in my area of interest.
- I don't want to go into the ag field as much anymore. Even though I am still very interested in plants, this isn't something I want to do for a career.
- It has widened my knowledge of career fields I may be interested in.
- Yes, expanded
- I think I might go into plant pathology as a minor rather than biomedical.
- It didn't
- None
- I am more open to plant sciences than I was before
- Moved me away from animal science

7. Is there anything you wanted to learn that was not presented? If so, what information was lacking?

- N/A
- N/A

- I would have liked to focus more on plants because this was the plant version of the ag discovery camp, but yet several days were dedicated to animals and I thought those days were interesting, but I talked to several people and they agreed there should have been more plant stuff.
- N/A
- N/A
- How epidemics, exotic invasions, etc. are stopped. How to create GM plants.
- I wish we had learned more about advanced plant structures and biology. I was disappointed our curriculum was completely plant death and not plant life.
- How plants are used for medicine because of chemical makeup and structures
- Yes, other plant use (medicinal, etc.) and general cures for plant diseases.
- Medicinal values of plants and what plants treat what.
- About chickens
- None
- Not particularly
- More on geocaching

8. What agriculture topic do you want to learn more about?

- Veterinary Science
- The agriculture topic I want to learn more about is farm ecology and more animal based pre-vet path.
- Botany
- Botany and environmental science
- Entomology
- Using plant products
- Beneficial insects and their importance in agriculture
- Business management and GMOs
- Plant pathology
- Medicinal plants
- Turning animal waste into fertilizer
- Types of crops
- I really like seeing how things fit together so maybe ecology or plant pathology
- biology

9. What were Kestrel's strengths as an instructor?

- She was able to face adversity when her time was cut short by other programming
- As an instructor, Kestrel was very calm, patient, and understanding. She's so funny and great!
- She knew what she was talking about and was very personable and easy to talk to and confident in what she told us.
- Easy to understand, make experiments fun, nice.
- Plant pathology

- Knowing what she is talking about, interests, not frustrated when teaching difficult techniques we need help with.
- Clarity in explaining things and getting us awake in the mornings
- Kestrel is a very good speaker and teacher. The lessons are comprehensive and detailed and enjoyable. She is also good at demonstrating lab techniques and procedures for each experiment.
- Very enthusiastic when presenting, informative on procedures and details, creative
- Speaking, explanation
- Her way of interacting with us and her willingness to help
- Happy
- Plant disease, fungi, bacteria, the lab equipment, and teaching
- Everything, knowledgeable but able to explain things clearly, polite, patient, and relatable
- all

10. What were Kestrel's weaknesses as an instructor?

- N/A
- N/A She was great.
- More guidance on what is expected in the presentations at the end so that the groups
- N/A
- N/A
- N/A
- Her teaching is very lab centered. For people that learn better through lecture based learning, the labs are not as helpful I learning the topic.
- Can be hard to hear her sometimes
- Taking a lot on and leaving to individual groups, allowing the rest to wait
- Nothing
- None
- None
- There is only one of her
- Lectures a little long

11. Did the Ag Discovery program meet your expectations? Choose one.

Question	**Percentage of Students Answered (n=15)**
The program was below expectations	**13%**
The program met my expectations	**33%**
The program exceeded my expectations	**54%**

Other Comments:

- The whole camp was amazing. Thank you for taking the time to teach us and experiment.
- I was really excited to finally find a summer botany program that I could afford and that could help me with my future since my school doesn't have anything like it. So when I saw that the

schedule included so many days of learning about animals I was really disappointed, especially since ag discovery hosts camps specifically for animals. Plant camps should teach about plants and what affects them, like entomology.

- Most of the non-lab curriculum was animal related. I wanted more presentations on different fields of study. I would have liked to see the USDA admin offices.
- I wish I had Kestrel as one of my high school science teachers!
- Ms. Kestrel, you do an excellent job of teaching.
- My only complaint is that it was too short and I had to miss a couple of days because I was sick. I had a lot of fun and learned so much while I was here. I made great contacts and wonderful friends.
- I hope to come to NC State