NCSBA MBP Master Craftsman
Research Project Guidelines

Both the NC State Extension Apiculturist at NCSU and the MBP committee will review and evaluate any proposed Master Craftsman research project submitted for consideration. Your goal is to submit a proposal that includes parameters associated with a standard research model. The observations and formation of your topic, hypothesis, process, analysis of data and conclusion are all important aspects that your proposal should include and that your project should encompass. Should your project have merit but fall short of what is believed to be a valid research experience, we will return your proposal, offering recommendations so you may choose to amend and resubmit. If we find your proposed research is without merit, we will ask that you look to an alternative topic for your project. Reporting on your project as it progresses, both process and data, is required and must be provided on an acceptable schedule. When the project is complete, your results must be written up and submitted to the NC State Extension Apiculturist and the MBP committee for evaluation. Your experience from this project will give you a clearer understanding of the challenges and rewards associated with Scientific research. Should your project yield some beneficial results, we encourage you to publish your findings for the betterment of Apiculture.

The following is an excerpt from Wikipedia's definition of "Research". There are many sources available on the internet setting out different authors perspective on research, valid research models and particularly on Apiculture research. We suggest you familiarize yourself with these as a guide to formatting your own proposed research project.

Scientific research

Generally, research is understood to follow a certain structural process. Though step order may vary depending on the subject matter and researcher, the following steps are usually part of most formal research, both basic and applied:

1. Observations and formation of the topic: Consists of the subject area of one's interest and following that subject area to conduct subject related research. The subject area should not be randomly chosen since it requires reading a vast amount of literature on the topic to determine the gap in the literature the researcher intends to narrow. A keen interest in the chosen subject area is advisable. The research will have to be justified by linking its importance to already existing knowledge about the topic.

2. Hypothesis: A testable prediction which designates the relationship between two or more variables.
3. Conceptual definition: Description of a concept by relating it to other concepts.
4. Operational definition: Details in regards to defining the variables and how they will be measured/assessed in the study.
5. Gathering of data: Consists of identifying a population and selecting samples, gathering information from or about these samples by using specific research instruments. The instruments used for data collection must be valid and reliable.
6. Analysis of data: Involves breaking down the individual pieces of data to draw conclusions about it.
7. Data Interpretation: This can be represented through tables, figures, and pictures, and then described in words.
8. Test, revising of hypothesis
9. Conclusion, reiteration if necessary

A common misconception is that a hypothesis will be proven (see, rather, null hypothesis). Generally, a hypothesis is used to make predictions that can be tested by observing the outcome of an experiment. If the outcome is inconsistent with the hypothesis, then the hypothesis is rejected (see falsifiability). However, if the outcome is consistent with the hypothesis, the experiment is said to support the hypothesis. This careful language is used because researchers recognize that alternative hypotheses may also be consistent with the observations. In this sense, a hypothesis can never be proven, but rather only supported by surviving rounds of scientific testing and, eventually, becoming widely thought of as true.

A useful hypothesis allows prediction and within the accuracy of observation of the time, the prediction will be verified. As the accuracy of observation improves with time, the hypothesis may no longer provide an accurate prediction. In this case, a new hypothesis will arise to challenge the old, and to the extent that the new hypothesis makes more accurate predictions than the old, the new will supplant it. Researchers can also use a null hypothesis, which states no relationship or difference between the independent or dependent variables.