



FIELD MANUAL

Biology of economic crops

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Prakata

Buku ini disediakan sebagai panduan kepada pelajar-pelajar yang mengikuti kursus Biologi Tanaman Ekonomi (FPT 2084) program Sarjana Muda Sains Gunaan (Agroteknologi).



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rules of **CONDUCT AND GENERAL SAFETY**

Some of the tools, equipment and chemicals used in this course may be harmful to humans and animals. Therefore, certain rules are necessary to avoid injuries or harm to yourself or others. Anyone who decides to disobey these guidelines or acts carelessly and puts other people in danger may be expelled from the practical sessions immediately. Consult your lecturer or instructor if you have any questions about how to conduct a particular task. The following guidelines must be followed by every student:

1. Safety boots or other covered shoes must be worn at all times during the practical session.
2. Arrange all superfluous clothing, unnecessary books, bags, handbags, and other items in their proper locations.
3. Smoking in the working area is forbidden at all times.
4. If not handled appropriately, some of the substances used in particular workouts can be dangerous. Make sure to follow the safety instructions provided in the activity and by your instructor or lecturer.



rules of **CONDUCT AND GENERAL SAFETY**

5. Immediately inform your instructors or lecturers of any cuts, injuries, or breakages.
6. Return all tools and equipment to their designated place after cleaning from any debris and dirt.
7. Place all sharp/harmful items into specified containers or areas. **DO NOT** let undesirable and unnecessary stuff accumulate.
8. Please tidy up your working area. **DO NOT** expect your instructors or technicians to do this for you.
9. Students should take note of the safety features to facilitate necessary action to be taken during an emergency.
10. Finally, wash your hands thoroughly before and after each session using disinfectant if possible.



rules of **CONDUCT AND GENERAL SAFETY**

All farm/field tasks can be done more effectively and efficiently if the subject matter is understood before attending the practical session. Read the guidebook multiple times before the practical begins to achieve this. Understand the proper technique for each exercise as well as the lessons it is meant to teach. Additionally, read the relevant chapters in your textbook that are related to the experiment being conducted. You'll save a tonne of time and work by doing this during the real practical sessions. Your instructor will briefly go over what has to be done, where to get the materials, and other key details at the start of each practical session. If you don't understand the instructor/lecturer or the concepts being discussed, feel free to ask questions. Most of the task on the farm or in the field is meant to be done in teams or with a partner. This will help with subject coverage, save time and money, and promote discussion of the data and results.



Writing Up Practical Reports

Formal laboratory reports contain the following sections:

1. Introduction

The report's introduction is followed by the body of the material. Generally, it explains to the reader what you want to do and why. Clearly state the concepts and principles you are putting into practice, and if required, provide any background information that would be helpful.

2. Materials and Methods

The methodology section should describe what you did rather than just restate the manual's instructions. You must clearly explain your procedure so that others can do the same. Make sure to detail the steps you took in your own words.

3. Results and Discussion

The results of your study should be outlined in this section. It will mainly be made up of numbers and calculations and organized into tables and figures. Figures, diagrams, sketches, and graphs. Despite the fact that tables and figures have descriptive titles, you should refer to them in the body of your writing by their numbers. For instance, you might bring up Table 1 while talking about your tables and graphs. The reader should subsequently be given an explanation of the experiment's findings. Results should be explained, and any flaws in the strategy or execution should be mentioned. This section should address any queries.

4. Conclusion

The final section tells your reader where to find sources of information you cited in the text. At the end of your report, give a complete reference list presented in the style of a journal. e.g:

a) Journal/ article

Wood, C.W., Torbert, H.A., & Weaver, D.B. (1993). Nitrogen Fertilizer Effects on Soybean Growth, Yield, and Seed Composition. *Journal of Production Agriculture*, 6(3), 354–360. <https://doi.org/10.2134/jpa1993.0354>

b) Books

Barrett, A. J., Rawlings, N. D., Woessner, J. F. (2003). *The Handbook of Proteolytic Enzymes*. 2nd ed. Academic Press.

c) Chapter in books

Jordon, J. V. (2013). Relational resilience in girls. In S. Goldstein & R. B. Brooks (Eds.), *Handbook of resilience in children* (2nd ed., pp. 73–86). Springer. https://doi.org/10.1007/978-1-4614-3661-4_5

d) Website

Laskowski, R.A., MacArthur, M.W., Smith, D.K., Jones, D.T., Hutchinson, E.G., Morris, A.L., Naylor, D., Moss, D. and Thornton, J.M. (1994). Procheck v.3.5.4: Operating Manual. <http://www.biochem.ucl.ac.uk/roman/procheck/procheck.html>. Accessed on March 1994

e) Magazine or newspaper article without a DOI, with a non database URL:
Gallo, A. (2015, February 4). How to build a meaningful career. *Harvard Business Review*. <https://hbr.org/2015/02/how-to-build-a-meaningful-career>