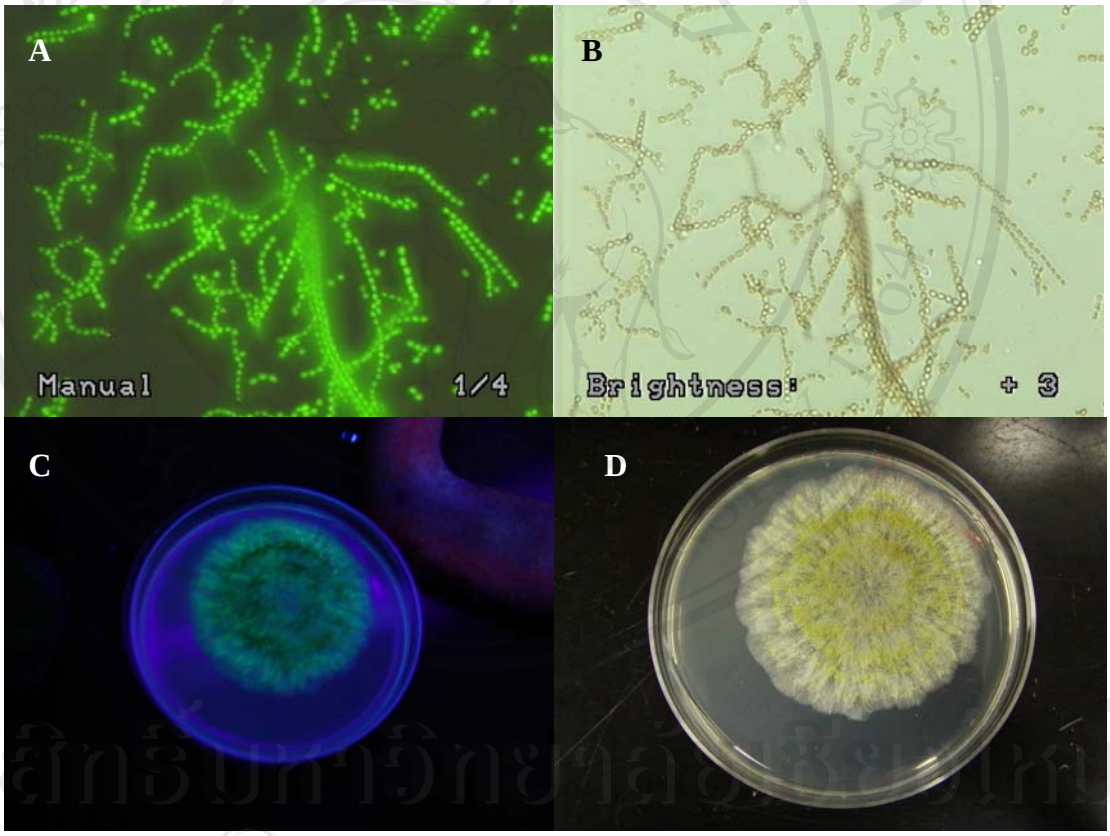
APPENDIX

Appendix A Conidia of GFP *Aspergillus flavus* observed under (A) an UV-illuminated microscope and (B) a white light microscope. *A. flavus* colony observed when illuminated with (C) UV light and (D) normal light.



Appendix B A minirhizotron camera system.

Appendix C Installation and operation of QuaCos (Quantification of Color System)

Installation

The QuaCos directory includes files named **Quacos.cab**, **setup.exe**, and **setup.lst**. To install, use either Windows Explorer double click on **setup.exe** or click **Start** then **Run**. Select **Browse** to find path to **setup.exe** and then click **Ok**. We recommend installing QuaCos under the program director, which is set as the default.

Operation

1. Open QuaCos, for example, by selecting **Start**, the **Programs**, and finally **QuaCos**. Please select Disclaimer, and then read and accept the terms of using QuaCos.
2. Select **Ok**, which will lead to the display of a window with four tabbed cards at the bottom.
3. Under the **Input Option** tab select the path where the images to be analyzed are stored.
4. Click the **Output Option** tab to select the color values to be stored and the path for storing data.

To analyze an entire image:

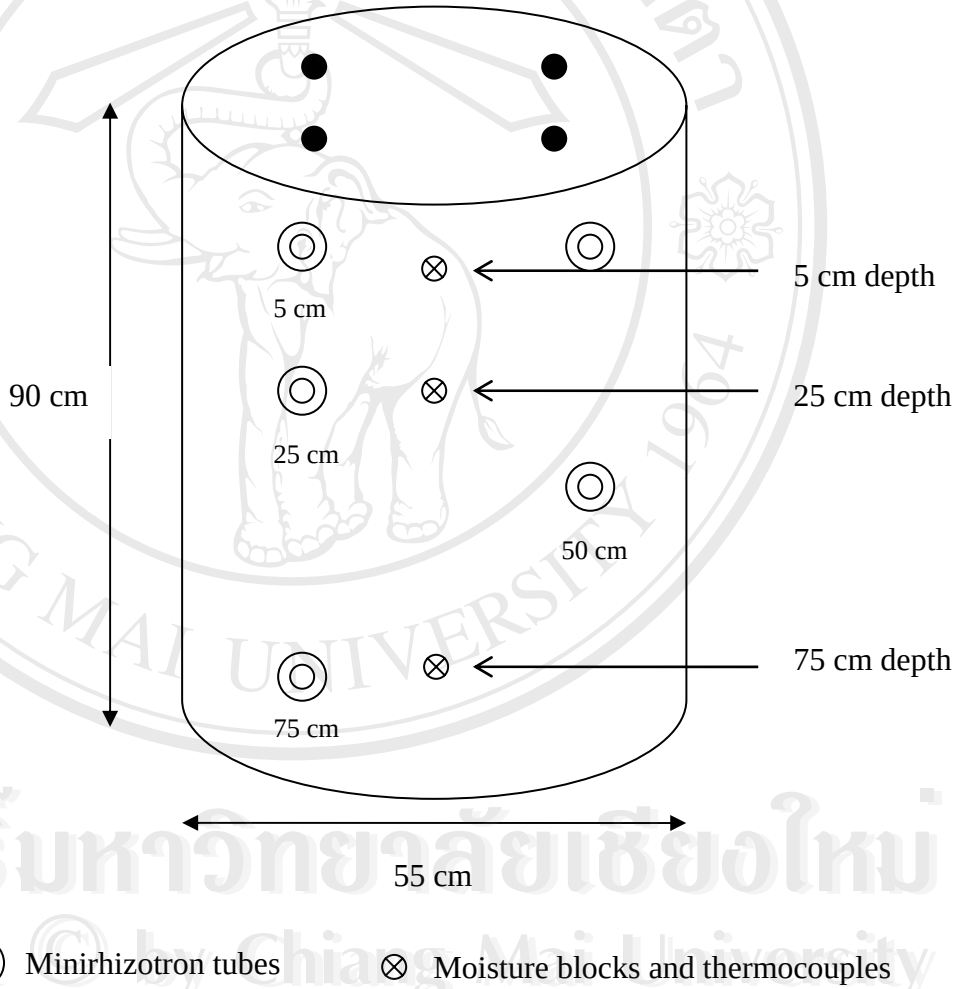
5. Select **the Full Image Analysis** tab.
6. Select the size of pixel groups to be averaged. Note that the smaller the size of pixel groups, the longer the analysis requires. It necessary, you may also rotate the data to match the orientation of the image.
7. To analyze a single image select the **Single** button. To analyze all images in a folder using the same setting select the **Batch** button.
8. To analyze a portion of an image: Select the **Partial Analysis** tab.

9. Select area to be analyzed from options provided, that is, 10 × 10, 25 × 25, 50 × 50, 75 × 75, 100 × 100, or 500 × 500 pixels. The area selected must be smaller than the image.
10. Position the selector over that portion of the image to be analyzed.
11. Select the **Analyze** button to analyze a single area. Repeat the process to analyze other areas of the image. Alternatively, select **Batch** to analyze the same area of all images in the folder.

Displaying Data

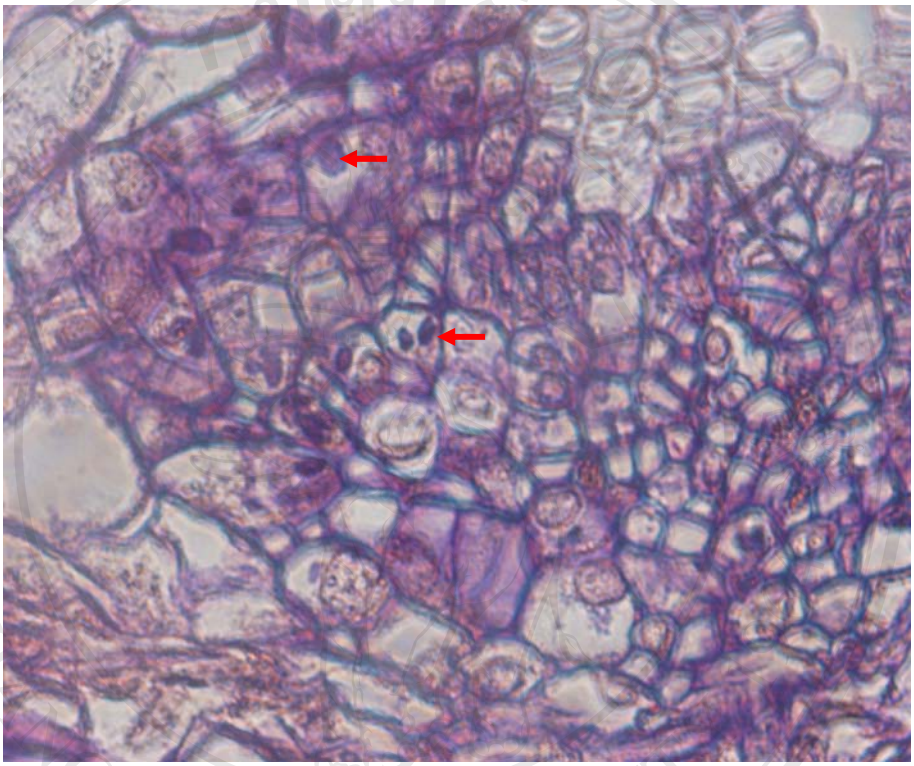
Data are stored in comma delimited ASCII format. They are named as image name_color.map. To open these files with Excel (© Microsoft), first open Excel, select **File**, **Open** and browse to locate data. Select **Delimited** then **Next**, **Comma** then **Next**, and **Finish**. To display the data, we find it convenient to create a graph using **Surface** chart type with the **Contour-color** option.

Appendix D Diagram of 214-L container fitted with minirhizotron tubes at 5, 25, 50, and 75 cm. Soil moisture blocks and thermocouples installed at 5, 25, and 75 cm depths.



Appendix E Wilting symptom of plants received T4 compared to T2 water treatment.

Appendix F Crossed section of seed coat of 511CC genotype. The red arrows showed tannin compound in epidermis cell.



Appendix G Fixative and stain used for preparation of slide.

1. Formalin-acetic acid-alcohol (FAA) mixture

Ethyl alcohol (50%)	90.0 ml
Glacial acetic acid	5.0 ml
Formalin	5.0 ml

2. Cotton blue lactophenol

Anhydrous lactophenol	67.0 ml
Distilled water	20.0 ml
Cotton blue	0.1 g

CURRICULUM VITAE

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Academic record:

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Publications and paper:

Jarunee Pilumwong, Chuckree Senthong and Keith T. Ingram. 2003. The effect of temperature and CO_2 concentration on peanut growth and *Aspergillus flavus* infection. A paper presented at the RGJ Congress IV, 25-27 April 2003, Jomthien Palm Beach Resort, Phattaya, Chonburi.

Jarunee Pilumwong, Chuckree Senthong, Keith T. Ingram, and Sawit Meechoui. 2004. Invasion of peanut flower by *Aspergillus flavus*. A paper presented at the 2004 Technical Meeting of the Senior Research Scholars' Project in Field Crop and the RGJ Seminar Series XXVIII: Field Crops, 6-7

May 2004, The Imperial Phukaew Hill Resort, Khaokho, Petchaboon, Thailand.

Jarunee Pilumwong, Chuckree Senthong, Sombat Srichuwong and Keith T. Ingram. 2005. Peanut root growth responses to different air temperature and atmospheric CO_2 concentration. A paper presented at International Peanut Conference 2005: Prospects and Emerging Opportunities for Peanut Quality and Utilization Technology, 9- 12 January 2005, Kasetsart University, Bangkok, Thailand.

Jarunee Pilumwong, Chuckree Senthong, Sombat Srichuwong and Keith T. Ingram. 2005. Biochemical Responses of Peanut Pods to Drought and *Aspergillus flavus* Infection. In Summary of TSB Annual Meeting at BioThailand 2005: Biotechnology Challenges in the 21st Century, 2-3 November 2005**,** at the Queen Sirikit National Convention Center, Bangkok, Thailand.

Jarunee Pilumwong, Chuckree Senthong, Sombat Srichuwong and Keith T. Ingram. Effects of Temperature and Elevated CO_2 on Shoot and Root Growth of Peanut (*Arachis hypogaea* L.) Grown in Controlled Environment Chambers. (accepted for published in ScienceAsia Journal: Volume 33, No. 1).

Jarunee Pilumwong , Chuckree Senthong, Keith T. Ingram, Sombat Srichuwong, Sawit Meechoui and Suthat Julsrigival. Biochemical responses of peanut pods to drought and *Aspergillus flavus* infection. (submitted to Plant and Soil Journal).