

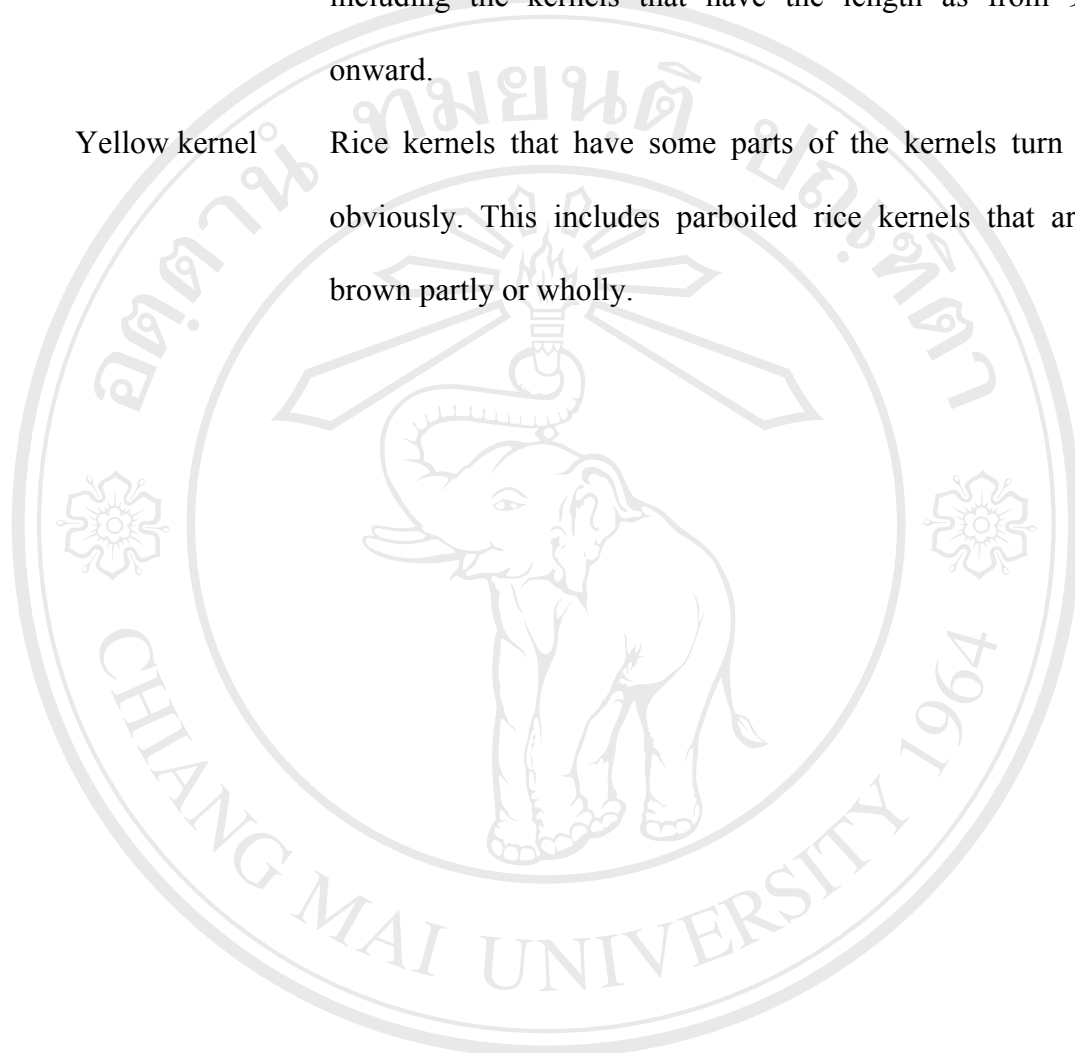
Appendix

Appendix A Thai rice standard definitions (adapted from Notification of Ministry of Commerce, Thailand, Subject: Rice Standards, B.E. 2540)

Broken rice	Broken kernels that have the length as from 2.5 parts but have not reached the length of Head rice. This includes split kernels that retain the area less than 80% of the whole kernel.
Brown rice	Rice that is dehusked only.
Chalky kernel	Non-glutinous rice kernels that have an opaque area like chalk covering the kernels as from 50% onward.
Damaged kernel	Kernels that are obviously damaged as can be seen by the naked eyes due to moisture, heat, fungi, insects or other.
Foreign matter	Other matter than rice. This includes rice husk and bran detached from rice kernels.
Head rice	Broken kernels whose lengths are more than those of broken rice but have not reached the length of the whole kernel. This includes split kernels that retain the area as from 80% of the whole kernel.
Immature kernel	Rice kernels that are light green, obtained from immature paddy.
Milling degree	The degree to which the rice is milled.
Other seeds	Seeds of other plants than rice kernels.
Paddy	Rice that is not yet dehusked.

Parboiled rice	Non-glutinous rice that has passed through the parboiling process and has its bran removed.
Red kernel	Rice kernels that have red bran covering the kernels wholly or partly.
Rice	Non-glutinous and glutinous rice (<i>Oryza sativa</i> L.) in whatever form.
Rice classification	Rice kernels of various lengths as specified which are the mixture of rice kernels of each class in accordance with the specified proportion.
Rice Standards	The minimum specifications for rice of each type and grade for domestic trade and international trade.
Small broken C1	Small broken kernels that pass through round hole metal sieve No.7.
Under-milled kernel	Milled rice kernels that have the milling degree below that specified for each grade of rice.
Undeveloped kernel	Kernels that do not develop normally as should be, and are flat without starch.
White glutinous rice	Rice that is obtained by removing bran from Brown glutinous rice.
White rice	Rice that is obtained by removing bran from Brown non-glutinous rice.

Whole kernel	Rice kernels that are in whole condition without any broken part, including the kernels that have the length as from 9 parts onward.
Yellow kernel	Rice kernels that have some parts of the kernels turn yellow obviously. This includes parboiled rice kernels that are light brown partly or wholly.



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Appendix B Rice grades in Thailand (adapted from Notification of Ministry of Commerce, Thailand, Subject: Rice Standards, B.E. 2540)

1. White rice

- 1.1 White rice 100% Grade A
- 1.2 White rice 100% Grade B
- 1.3 White rice 100% Grade C
- 1.4 White rice 5%
- 1.5 White rice 10%
- 1.6 White rice 15%
- 1.7 White rice 25% Super
- 1.8 White rice 25%
- 1.9 White rice 35%
- 1.10 White rice 45%
- 1.11 White broken rice A1 Extra Super
- 1.12 White broken rice A1 Super
- 1.13 White broken rice A1 Special

2. Brown rice

- 2.1 Brown rice 100% Grade A
- 2.2 Brown rice 100% Grade B
- 2.3 Brown rice 100% Grade C
- 2.4 Brown rice 5%
- 2.5 Brown rice 10%

2.6 Brown rice 15%

3. White glutinous rice

3.1 White glutinous rice 10%

3.2 White glutinous rice 25%

3.3 White glutinous broken rice A1

4. Parboiled rice

4.1 Parboiled rice 100% Sorted

4.2 Parboiled rice 100%

4.3 Parboiled rice 5% Sorted

4.4 Parboiled rice 5%

4.5 Parboiled rice 10% Sorted

4.6 Parboiled rice 10%

4.7 Parboiled rice 15%

4.8 Parboiled rice 25%

4.9 Parboiled broken rice A1

Curriculum vitae

Name: Mr. Manop Leesawatwong

Birth: 27 December 1977

Academic record:

Qualification	Area of concentration	Year	Institution
B.Sc. (Agric.) 1 st Honor	Plant nutrition	1999	Chiang Mai University
High school		1995	Srisawatwittayakhan School, Nan

Other trainings:

2005 Geographical Information Systems (GIS) data and mapping management (18-20 February 2005) at CMUPN*lab*

2003 Completed 7 training courses in microscopy at the Centre of Microscopy and Microanalysis (CMM), the University of Western Australia, W.A. Australia (June to December 2003) including;

1. Scanning Electron Microscopy (SEM) Course
2. Transmission Electron Microscopy (TEM) Course
3. Biological Transmission Electron Microscopy Course
4. Confocal and Optical Microscopy Course
5. Digital Image Manipulation and Storage Course
6. Variable Pressure Scanning Electron Microscopy Course
7. Cryo-electron Microscopy Course

2003 Attended lab work on histology at Center of Microscopy and Microanalysis at University of Western Australia and soluble protein analysis at trace element lab at Murdoch University and, W.A. Australia (June 2003 – May 2004).

Scholarships and awards:

Chiang Mai University Medal for Outstanding Student (1998)

Chiang Mai University Medal for Outstanding Student (1999)

First class honor in Bachelor's Degree (Agriculture) (2000)

Royal Golden Jubilee Ph.D. scholarship of Thailand Research Fund (2000 to present)

Publications and papers:

Leesawatwong M., Jamjod S., Kuo J., Dell B. and Rerkasem B. 2005. Nitrogen fertilizer increases seed protein and milling quality of rice. *Cereal Chemistry*. (in press)

Leesawatwong M., Jamjod S., Kuo J., Dell B. and Rerkasem B. 2004. Nitrogen fertilizer increases protein and reduces breakage of rice cultivar Chainat1. *IRRN 29*, 61-62.

Leesawatwong M., Jamjod S., Kuo J., Dell B. and Rerkasem B. 2004. Nitrogen fertilizer alters milling quality and protein distribution in head rice. A paper presented at 4th International Crop Science Congress, 26 Sep - 1 Oct 2004.

Brisbane, Australia. p. 304.

Leesawatwong M., Jamjod S. and Rerkasem B. 2003. Relationship between grain nitrogen, milling breakage and price in KDML105 and RD6. A paper presented at 1st Rice for the Future Congress, 31 August – 3 September 2004. Kasatsart University, Bangkok, Thailand. p.144.

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Leesawatwong M., Jamjod S. and Rerkasem B. 2003. Grain shape and harvest timing on head rice yield. A paper presented at Annual meeting of TRF Meso Groups in Crop Science, 9-11 May 2003, Chiang Mai University, Chiang Mai, Thailand. pp. 39-45.

Leesawatwong M., Jamjod S. and Rerkasem B. 2003. Managing nitrogen and harvest grain moisture for better rice milling quality. A paper presented at the 20th Pacific Science Congress, 17-21 March 2003. Sofitleplaza Hotel, Bangkok.

Leesawatwong M. 2001. Nitrogen on rice yield and milling quality. A paper presented at the Royal Golden Jubilee Plant Science Seminar Series I, 25 August 2001, Kasetsart University, Bangkok, Thailand.

Other activities:

1. Chairman of agronomy student club, year 1998, 1999, Faculty of Agriculture, CMU
2. Vice-president of an association of Agriculture student Club, year 1999, CMU
3. CMU, Royal Golden Jubilee Ph.D. student network staff (Faculty of Agriculture), year 2004