Working Group Report of 2017
Quality Measurement of Agricultural Products (QMAP)

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at
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1. Brief history

- 1996: A study on rice moisture meters was initiated with a coordinator of Australia.
- 1997: WG on Rice Moisture Meters was established.
- 2001: Mr. Issei Akamastu of NMIJ took the chair. Mr. Hiroshi Kitano (2005) and Dr. Tsuyoshi Matsumoto (2007) took over the chair.
- 2007: WG was renamed as present to cover a wide range of grains.
- WG conducted 12 training courses and workshops since 2001.
- WG members may be the economies participated in the training courses; Cambodia, PR China, Chinese Taipei, Indonesia, Rep. Korea, Malaysia, Mongolia, Philippines, Thailand and Viet Nam.

1.2. Membership
# APLMF Training Courses / Workshops on Rice Moisture Measurement and Quality of Agricultural Products

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Date (d/m/y)</th>
<th>Place (Host)</th>
<th>Trainers / Speakers</th>
<th>Trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study tour for rice moisture meas.</td>
<td>30/9-5/10/2001</td>
<td>Several places in Japan (NMIJ)</td>
<td>I. Akamatsu (NMIJ) and others (JP)</td>
<td>9 from 7 econ.</td>
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<tr>
<td>Training courses on traceability of rice moisture meters (partly supported by APEC)</td>
<td>19-30/8/2002</td>
<td>Khon Kaen, Thailand (CBWM)</td>
<td>Akamatsu, H. Tanaka (NMIJ), T. Watanabe &amp; N. Yoshida (Kett Co.)</td>
<td>23 from 7 econ.</td>
</tr>
<tr>
<td></td>
<td>30/8-10/9/2004</td>
<td>Bien-hoa, Vietnam (STAMEQ)</td>
<td>Akamatsu (NMIJ), Watanabe, Yoshida &amp; T. Suzuki (Kett Co.)</td>
<td>About 20</td>
</tr>
<tr>
<td></td>
<td>11-29/11/2004</td>
<td>Chiang Mai, Thailand (CBWM)</td>
<td>Akamatsu, Tanaka (NMIJ), Watanabe, Yoshida &amp; M. Yabe (Kett)</td>
<td>About 23 from ASEAN</td>
</tr>
<tr>
<td></td>
<td>15-26/8/2005</td>
<td>Manila, Philippines (ITDI)</td>
<td>Akamatsu, Tanaka (NMIJ), Watanabe &amp; Yoshida (Kett)</td>
<td>From ASEAN</td>
</tr>
<tr>
<td>Workshops on metrology of agricultural products and food safety (supported by APEC)</td>
<td>7-9/2/2007</td>
<td>Chiang Mai, Thailand (CBWM)</td>
<td>24 from 11 econ. including JP</td>
<td>About 80 incl. speakers</td>
</tr>
<tr>
<td></td>
<td>4-6/6/2008</td>
<td>Hangzhou, PR China (AQSIQ)</td>
<td>24 from 14 econ. including JP</td>
<td>About 70 including speakers</td>
</tr>
<tr>
<td></td>
<td>23-25/9/2009</td>
<td>Ho Chi Minh City, Vietnam (STAMEQ)</td>
<td>18 from 10 econ. including JP</td>
<td>20 from 11 economies</td>
</tr>
<tr>
<td>Training courses on traceability in rice moisture measurement (supported by MEDEA since 2015)</td>
<td>28/5-1/6/2012</td>
<td>Bandung, Indonesia (DoM)</td>
<td>T. Matsumoto (NMIJ), Yoshida &amp; Yabe (Kett)</td>
<td>36 from 3 economies</td>
</tr>
<tr>
<td></td>
<td>17-21/7/2017 (12th event)</td>
<td>Sepang, Malaysia (NMIM/SIRIM)</td>
<td>Matsumoto (NMIJ), Haslina bte Abdul Kadir (NMIM), Yoshida, Yabe &amp; Takahashi (Kett).</td>
<td>18 (+8 obs.) from 10 economies</td>
</tr>
</tbody>
</table>
**SECTION 2 – Key activities of 2016/17**

### 2.1. Training courses on grain / rice moisture measurement

The last course in Malaysia

- **Conducted at a hotel and the institute in Sepang, Malaysia on 17-21 July, 2017** hosted by **NMIM (National Metrology Institute of Malaysia)**, SIRIM Bhd. and supported by MEDEA
- **18 trainees + 8 observers** from **10 economies**; Bhutan, Cambodia, Indonesia, Malaysia, Mongolia, Myanmar, Nepal, Philippines, Thailand and Viet Nam.
- **APLMF representative**: Mr. Phil Sorrell (**MBIE, New Zealand**)
- **Trainers**: Dr. Tsuyoshi Matsumoto (**NMIJ**), Ms. Haslina bte Abdul Kadir (**NMIM**), Mr. Norihiro Yoshida, Ms. Mihoko Yabe & Mr. Rikiya Takahashi (**Kett Elec. Lab.**)
- One-day **lecture** and 4-days **practical** activities in 3 groups.
- **Equipment** was provided by NMIM and Kett Elec. Lab.
- Reference **samples** of rice were provided by NMIM.
- A technical tour to a **rice-processing factory** was provided on the final day.
Training course on rice moisture in Malaysia in 2017
SECTION 2 – Key activities of 2016/17

2.2. APLMF guide document on rice moisture measurement

- In Nov. 2016, the second draft of a new APLMF Guide Document on Rice Moisture Measurement was provided and comments were requested.
- In May 2017, it was published on the APLMF Website.
- This document aims to provide practical procedures to establish a regional traceability system and to calibrate grain moisture meters, which are not covered by OIML Recommendations or ISO documents.
- Materials used in the previous training courses on rice moisture measurement are used as the basis of this guide document.
- Other economies outside APLMF are also interested in this guide.
Section 2
– Key activities of 2016/17

2.3. Contributed to OIML

• WG is monitoring the activities of OIML TC 17/SC 1 (humidity) and TC 17/SC 8 (inst. for quality analysis of agri. products).

(1) TC 17/SC 1 on R 59 Moisture Meters for Cereal Grains and Oilseeds (2016)

A new version of R 59 was published in March, 2017 after a long effort by the joint secretariat of USA and PR China.

(2) TC 17/SC 8 on R 146 Protein Measuring Instruments for Cereal Grains and Oilseeds (2016: new)

A new R 146 was published in February 2017, after a long effort by the secretariat in Australia.

• WG submitted many comments in these revisions.

• In Japan, the WG chair attends domestic mirror committees to OIML and exchanges information with the stakeholders.
SECTION 2 – Key activities of 2016/17

2.4. Cooperation with BIPM and APMP

- The WG exchanged information regarding the grain moisture measurement with the scientists in NMIJ, who cooperates with BIPM (International Bureau of Weights and Measures) and APMP (Asia-Pacific Metrology Programme).

- Grain moisture is one of the common topics of concern for both scientific metrology and legal metrology as an important application of metrology.

- There is a group in NMIJ, which is developing a measurement technique for grain moisture using electromagnetic wave.
3.1. Taking over the chair for the next generation (important key change 1)

- NMIJ determined to **FINISH the WG** chair. As a background, NMIJ is not responsible for the quality of agricultural products. Another ministry (**MAFF**) supervises it in Japan.

- APLMF Secretariat is seeking for an **alternative economy** of the chair. A call for nominees is found in the APLMF Newsletter (13 Sept.).

- The chair should **coordinate** training courses (**hosting is not required**). Significant **funding** support from the economy is **not** requested.

- Present chair will **support** the new chair as a member. This proposal meets a new policy of APLMF (**WG maintained with a real group**).

- This is a transition to the **next generation**. Competent **trainees** should be the **trainers** in the future who support the new chair.
3.2. Transfer of training to a regional level (important key change 2)

**Besides taking over the chair:**

- The main concept of APLMF training programs has been “*train the trainers*” course for a long time.
- An international training activity should then gradually be transferred to a *regional* or *domestic* program.
- Considering the *well-established* contents of the training program on grain moisture measurement, it is a *good timing* for transfer.
- WG encourages *competent trainees* to plan and conduct *regional training courses* in each economy as the trainers.
Regardless taking over the chair:
• Many economies request continuing training.
• Many economies need a traceability and more practical knowledge/skills.

There are needs for:
• A long (2 weeks) advanced course for prospective trainers.
• A short training course for the beginners or aiming a specific target.
• A wider range of products (wheat, corn, beans, coffee…).
• Contents for preventing fraud and adjusting meters.
• Practical lectures for measurement uncertainty.
• Practical contents for preparing reference samples.

Competent experts for trainers in the future:
• WG recommends experts from Indonesia, Malaysia, Philippines, Thailand and Viet Nam.
Regardless taking over the chair:

- WG should continue to review and update the APLMF Guide Document on Rice Moisture Measurement. The ‘rice’ in the title should be replaced with ‘grain’ to cover wider range of products.

- WG should continue to contribute to OIML TC 17/SC 1 and TC 17/SC 8 even after the R 59 and R 146 were published. WG should harmonize between the activities of OIML and APLMF in agricultural measurements.

- WG should continue to monitor the activities in scientific metrology.
SECTION 4 – Future focus – Emerging issues

4.1. Taking over the **assets** of WG
4.2. Special **remarks** on grain moisture

- The transfer of the chair shall proceed **not to lose** the valuable **assets** of WG (experience and materials).
- **Management with a group** including the former chair could be a good solution.
- Because grain moisture measurement strongly depends on practical skills, **practical component** is a **core item** to be maintained.
- **Reference samples** of grain is another core item for a training as well as a traceability. There is a **critical difference** between a grain sample and a physical standard (mass, etc.) as its quality is not stable.
- **Preparation phase** of a training plays an important role. The quality of a training depends on the facility, equipment and samples. WG and trainers should **communicate closely** with the host institute in the preparation phase.
SECTION 4 – Future focus – Emerging issues

4.3. Synergy among the stakeholders

4.4. Cooperation with the private sectors

• A framework in an economy for grain moisture measurement is frequently maintained by several independent ministries of the government. A synergy among such ministries is another important issue to be remembered when we organize a training course. ➔ Malaysia provided a good coordination in July!

• Support from private sectors is another important factor. Such a training program essentially connected closely to the equipment, instruments and knowledge which are provided commercially. In reality, the organizer still needs support from private sectors. WG should find a good compromise with the private sectors for continuing training.
Since 2015, a new system (Google Drive) realized a paper-less course gradually.

Another online system (Survey Monkey) provided by PTB facilitated collection of feedback comments from the participants.

Recently, many participants bring their own PCs/tablets which enable usage of such IT systems.

Such an operation lessened the workload of the host as well as the trainers. WG encourages continuing such an operation using IT technologies.

WG could not provide e-learning materials yet. WG recommends such material be provided with a special session for demonstration.
Thank you for your kind attention!

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