

Report

Thailand In-Country Training Course 2017

“DUS Test of Marigold using UPOV TG of Marigold (*Tagetes erecta* L.)”

18-20 January 2017

**at Srisaket Horticultural Research Center, Srisaket Province and
Ubonratchathani Field Crop Research Center, Ubonratchathani Province**

Organize by

**Plant Variety Protection Research Group, Plant Variety Protection Office,
Department of Agriculture, Ministry of Agriculture and Cooperatives, Thailand**

In cooperation with

Minister of Agriculture, Forestry and Fisheries (MAFF) of Japan

Activity under EAPVP Forum

Introduction

From 18-20 January 2017, A training course for DUS Test of Marigold using UPOV TG of Marigold (*Tagetes erecta* L.) was held in Srisaket Horticultural Research Center, Srisaket Province and Ubonratchathani Field Crop Research Center, Ubonratchathani Province. The course was organized by the cooperation between Plant Variety Protection Office of Thailand and East Asia Plant Variety Protection Forum Office (EAPVPPF).

Information of Sisaket Horticultural Research Center

1. Area base : 1,092 Rai (170 Hectare)

2. Responsibilities

- To solve horticulture problems locally and nationally
- To undertake special government projects
- To work collaboratively with international organizations

3. Crops Involved

- Tree crops : papaya, mango, cashew nut, sour tamarind, durian, rambutan, grape, pomegranate, oil palm
- Vegetables : chilli, tomato, shallot, pumpkin, sweet potato, roselle
- Flowers : Chrysanthemum, jasmine, orchids
- Others : Germplasm collection of tropical fruits, vegetables, wild orchids

4. STAFF

- Officers 17
- Permanent Employees 9
- Casual Employees (group 1) 119
- Temporary Employees 40

Participants

There are 29 participants from Department of Agriculture of Thailand, Private Company and University.

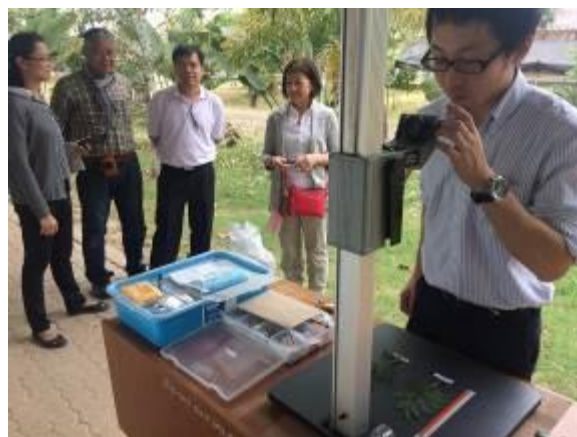
List of Participants

No.	Name-surname	Organization	Related Plants
1	Ms.Thidakoon Saenudom	PVP Office, DOA	Field Crops
2	Mr. Pan Pankhao	PVP Office, DOA	Field Crops
3	Ms. Rungthiwa Thanumthat	PVP Office, DOA	Vegetables , Ornamental Plants
4	Mr. Panipat Krissamak	PVP Office, DOA	Field Crops
5	Ms. Natthaporn Siang-on	PVP Office, DOA	Field Crops
6	Ms.Dara Thinwongdang	PVP Office, DOA	Field Crops

No.	Name-surname	Organization	Related Plants
7	Ms.Saraichanon Cherdchaisathaporn	PVP Office, DOA	Vegetables , Ornamental Plants
8	Ms.Itsama Natthanyanop	PVP Office, DOA	-
11	Mrs. Chutima Ratanasatien	Department of Agriculture	Ornamental Plants
12	Mrs. Supaporn Sachati	Horticultural Research Institute, DOA	Ornamental Plants
13	Ms. Sasima Payuyong	Horticultural Research Institute, DOA	Ornamental Plants
14	Ms. Supawadee Sompak	Srisaket Horticultural Research Center, DOA	Pumpkin, Marigold, Papaya
30	Ms. Ratchanee Siriyan	Srisaket Horticultural Research Center, DOA	Chili , Papaya
15	Ms. Chanthana Chokpachuen	Srisaket Horticultural Research Center, DOA	Chili, Papaya
16	Mr. Authapon Rukkaphan	Srisaket Horticultural Research Center, DOA	Tomato, Grape , Water lily
17	Ms. Supan Maidatchan	Chaingrai Horticultural Research Center, DOA	Orchid , Ornamental Plants
18	Ms. Yupaporn Paphan	Loei Horticultural Research Center, DOA	Ornamental Plants
19	Mr. Kraingsak Sangwichai	Loei Horticultural Research Center, DOA	Ornamental Plants
20	Ms. Phusanisa Yodpun	East West Seed Co.,Ltd.	Vegetable , Ornamental Plants
21	Ms. Nalinee Patsuwana	Thai Seed & Agriculture Co.,Ltd.	Marigold
22	Ms. Suphit Sangchai	Thai Seed & Agriculture Co.,Ltd.	Chili , Ornamental Plants
23	Mr. Sitthichai Peerapasakorn	Homeseeds Limited Partnership	Marigold
24	Ms. Jiraporn Bunphan	Homeseeds Limited Partnership	Marigold
25	Ms. Chanulak Khanopdee	Rajamangala University of Technology Lanna Lampang	Vegetables , Ornamental Plants
26	Mr. Chaiwat Pongsukhumalkul	Rajamangala University of Technology Lanna Lampang	Vegetables , Ornamental Plants
27	Mr. Khane Khunphrm	Rajamangala University of Technology Lanna Lampang	Vegetables
28	Mr. Aphu Bae-se	Rajamangala University of Technology Lanna Lampang	Vegetables , Ornamental Plants
29	Mr. Krisada Sukwiwat	AmeriSeed (Thailand) Co.,Ltd.	Marigold

The Process of Training Course

1. On 18 August 2017, the Lecturers from MAFF and NARO went to Srisaket Horticultural Research Center, Srisaket Province, They made arrangement for practical works of selecting characteristics to be used for practice.



2. From 18-20 January 2017 , the program have started as follow in the agenda.

Day one: Wed 18 Jan 2017

The first day is a lecture part. There were five topics. The participants made a pre-test before the workshop started.

08.30-09.00	Registration
09.00-09.30	Opening Ceremony and Group Photo - Welcomed by Mr. Thawatchai Nimkingrat, Director of Srisaket Horticultural Research Center - Opening Remark by Mr. Anan Aksornsri, Director of Plant Varieties Protection Office of Thailand
09.30-09.40	Pre-test
09.40-10.00	-Break-
10.00-10.30	Topic1: Introduction of Plant Variety Protection Laws By Mr. Pan Pankhao, PVP Office
10.30-11.30	Topic2: Basic Rules for DUS Testing (by TG 1/3) By Mr. Tadao Mizuno, MAFF
11.30-12.30	Topic3: How to Set up Example Varieties By Mr. Tadao Mizuno, MAFF
12.30-13.30	-Lunch-
13.30-14.30	Topic4: UPOV TG for Marigold (<i>Tagetes erecta</i> L.) By Mr. Yosuke Abe, Center for Seeds and Seedlings, NARO
14.30-16.00	Topic5: Taking Photos for DUS Testing By Mr. Yosuke Abe, Center for Seeds and Seedlings, NARO
16.00-16.30	Q&A, Review and Conclusion of the Day
18.00	Dinner hosted by DOA



Day Two: Thu 19 Jan 2017

Group Working on DUS Examination of Marigold (*Tagetes erecta* L.). Participants were divided into 4 groups for practical. They were observed and prepared the report by each group.

- | | |
|-------------|--|
| 08.30-09.00 | Explanation/Instruction on Group Working |
| 09.00-12.00 | Group Working-Plant examination in DUS trials |
| 10.30-10.50 | -Break- |
| 10.50-12.00 | Group Working-Plant examination in DUS trials (Cont.) |
| 12.00-13.00 | -Lunch- |
| 13.00-15.00 | Group Working-Preparation for making report and presentation |
| 15.00-15.20 | -Break- |
| 15.20-16.30 | Group Working-Preparation for making report and presentation |
| 18.00 | Dinner hosted by DOA |



Day 3: Friday 20 Jan 2017

Participants visited to Ubonratchathani Field Crops Research Center. The participants were presented by the representative of each group. The lecturers made comment to each group. Finally, participants made a post-test.

- 08.00 Leave Srisaket Province to Ubonratchathani Province
- 09.00-09.30 Arrive at Ubonratchathani Field Crops Research Center
Welcomed by Mr. Chamrong Kokrum, Director of Ubonratchathani Field Crops Research Center
- 09.30-12.00 Group Presentation, Discussion and Wrap up the Training
- 12.00-12.30 Post-test
- 12.30-13.30 -Lunch-
- 13.30-15.00 Study Tour in Ubonratchathani Field Crops Research Center
Visit some local (O-Top) shops or Tourist attractive places
- 15.00-15.20 -Break-
- 15.20 Leave Ubonratchathani Province to Srisaket Province



Test

There are 20 questions in the test. The questions are as follows.

1. What is the Department in charge of Plant Variety Protection Act, B.E. 2542 (1999)?
 - a. Department of Forestry
 - b. Department of Intellectual Property
 - c. Department of Agriculture**
 - d. Department of National Park, Wildlife and Plant conservation
2. What is the main information for examining in DUS Test?
 - a. Breed history
 - b. Morphology**
 - c. Anatomy
 - d. All are correct
3. How long does it take for publication of such application for registration of new plant variety in Thailand?
 - a. 30 days
 - b. 60 days
 - c. 90 days**
 - d. 120 days
4. What is the meaning of DUS?
 - a. distinctness
 - b. uniformity
 - c. stability
 - d. All are correct**
5. What is the meaning of "expressing the same characteristics when growing a further generation"?
 - a. distinctness
 - b. uniformity
 - c. stability**
 - d. genetic variation
6. What is Quantitative Characteristic (QN)
 - a. shape of petal
 - b. many color of petal
 - c. shape of leaf
 - d. height of plant**
7. What is type of expression of "Intensity of anthocyanin coloration"?
 - a. Quantitative characteristic (QN)**
 - b. Qualitative characteristic (QL)
 - c. Pseudo-qualitative characteristic (PQ)
 - d. All are correct
8. What is type of expression of "incision of margin (present or absent)"?
 - a. Quantitative characteristic (QN)
 - b. Qualitative characteristic (QL)**
 - c. Pseudo-qualitative characteristic (PQ)
 - d. All are correct
9. What is type of expression of "shape of petal"?
 - a. Quantitative characteristic (QN)
 - b. Qualitative characteristic (QL)
 - c. Pseudo-qualitative characteristic (PQ)**
 - d. All are correct
10. What is method to assessment on height of plant?
 - a. Measurement by a single observation of a group of plants or parts of plants.
 - b. Measurement of a number of individual plants or parts of plants.**
 - c. a and b correct
 - d. None of the above.

11. How to Measure the leaf of Marigold?
- a. measure leaflet at middle
 - b. measure compound leaves (argest leaflet)
 - c. measure all of leaflet and average
 - d. measure by random leaflet
12. What is true about Marigold?
- a. start observation when plants get more than 5 flower heads.
 - b. Type of inflorescence is head
 - c. compound leaves only
 - d. All are correct
13. What is the criteria to choose similar variety?
- a. any varieties
 - b. clear distinguishable
 - c. most alike varieties
 - d. None of all
14. How many F value in AV mode can give the focus range deeper.
- a. f 2.8
 - b. f 4.0
 - c. f 5.6
 - d. f 8.0
15. What is camera mode that we should set?
- a. SCN mode and M mode
 - b. M mode and AUTO mode
 - c. P mode and Av mode
 - d. P mode and SCN mode
- a. 1,280 x 960 pixels
- b. 1,600 x 1,200 pixels
- c. 2,080 x 1,560 pixels
- d. maximum pixels
17. What is the objective to adjust the white balance?
- a. clearly
 - b. reduce shadow
 - c. nearly real color
 - d. a and c are correct
18. What is the mode can't adjust aperture?
- a. AUTO mode
 - b. M mode
 - c. AV mode
 - d. P mode
19. How to solve the ruler appears bent?
- a. increase distance from the object
 - b. reduce distance from the object
 - c. adjust aperture
 - d. adjust a shutter speed
20. What is the appropriate ISO number can reduce noise in photo?
- a. 100
 - b. 200
 - c. 400
 - d. 1600

Evaluate Pre-test and Post-test

The test have 20 scores. The lowest score of pre-test are 5. The highest score of pre-test are 16. The lowest score of post-test are 13. The highest score of post-test are 20. All of participants increased the score.

No.	Organization	20 score s	
		pre-test	post-test
1	Horticultural Research Institute	10	15
2	Horticultural Research Institute	11	17
3	Srisaket Horticultural Research Center	16	19
4	Srisaket Horticultural Research Center	16	18
5	Srisaket Horticultural Research Center	16	19
6	Srisaket Horticultural Research Center	16	18
7	Chaingrai Horticultural Research Center	13	17
8	Loei Horticultural Research Center	10	20
9	Loei Horticultural Research Center	5	13
10	East West Seed Co.,Ltd.	15	19
11	Thai Seed & Agriculture Co.,Ltd.	10	16
12	Thai Seed & Agriculture Co.,Ltd.	11	20
13	Homeseeds Limited Partnership	8	16
14	Homeseeds Limited Partnership	8	17
15	Rajamangala University of Technology Lanna Lampang	11	16
16	Rajamangala University of Technology Lanna Lampang	11	16
17	Rajamangala University of Technology Lanna Lampang	12	15
18	Rajamangala University of Technology Lanna Lampang	8	17
19	AmeriSeed (Thailand) Co.,Ltd.	9	16
20	Plant Variety Protection Office	10	19

Evaluation of Organizing the Training

1. Understanding of each topic

Topics	Before taking course			After taking course		
	Few	Medium	Much	Few	Medium	Much
1. Topic1: Introduction of Plant Variety Protection Laws	10 (55.56%)	8 (44.44%)	-	-	9 (50%)	9 (50%)
2. Topic2: Basic Rules for DUS Testing (by TG 1/3)	14 (77.78%)	4 (22.22%)	-	-	12 (66.67%)	6 (33.33%)
3. Topic3: How to Set up Example Varieties	16 (88.89%)	2 (11.11%)	-	-	12 (66.67%)	6 (33.33%)
4. Topic4: UPOV TG for Marigold (<i>Tagetes erecta</i> L.)	16 (88.89%)	2 (11.11%)	-	-	12 (66.67%)	6 (33.33%)
5. Topic5: Taking Photos for DUS Testing and Practicing	14 (77.78%)	4 (22.22%)	-	-	10 (55.56%)	8 (44.44%)
6. Group Working-Plant examination in DUS trials	16 (88.89%)	2 (11.11%)	-	-	12 (66.33%)	6 (33.33%)

100% = 18 people

2. Satisfaction of the training

Topics	Poor	Few	Medium	Much
1. Training place	-	-	3 (16.66%)	15 (83.34%)
2. Period of Training	-	1 (5.55%)	3 (16.66%)	14 (83.34%)
3. Pattern of Training	-	-	3 (16.66%)	15 (83.34%)
4. Documents	-	-	2 (11.11%)	16 (88.89%)
5. Trainers	-	-	-	18 (100%)
6. Staff	-	-	1 (5.55%)	17 (94.45%)

100% = 18 persons

3. Do you think the training should be continued or not?

Yes = 100%

No = 0%

100% = 18 people