



DUS TEST in INDONESIA & Uniformity assessment cases

Online DUS Training for Maize on
24-25 February, 2021



<http://pvtpp.setjen.pertanian.go.id>

Pusat PVTIPP
Pusat Perlindungan
Varietas Tanaman
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DUS TEST IN INDONESIA (section 1)

History



2000

Indonesia
PVP Law

2002

Center for
Plant Variety
Protection
Office under
the Ministry
of
Agriculture

2004

1st PVP
service for
public

2005

1st **DUS Test**
– onsite
inspection
on
Eucalyptus

2006

1st Granting
PVP
Certificate

History ...



2013

**Internal PVP
Examiners**
CPVPAP assigned
- 6 persons

2014

1st DUS TESTING
Station –
(Highland) at
Manoko – West
Java

2019

2nd DUS TESTING
Station –
(Lowland) at
Mojosari – East
Java

End of 2020

817 PVP
application
**18 personels of
PVP Examiners**
506 Varieties
certificate
granted

INDONESIA DUS TEST CONDITIONS



- All plants species can be applied for PVP
- DUS test should conduct after 6 months announcement for public
- For trees /perennial crops can be asses at specific time
- DUS testing period maximum for 24 months since the DUS test request
- 1 growing cycle/ period for DUS test*
- No specific seasons→ tropical region: DUS test can be done anytime all year around
- Based on National DUS test guidelines – PPU : 105 TG's (2020)

DUS test method



Official test

- Previously conducted in research agency site's
- All DUS test should be done at DUS testing station since 2015 (for highland crops) and 2019 (for low land crops)

Breeder test

- At breeder premises
- Only for plants that can't grow well at DUS testing station

Document examination

- Only for plants/ crops that can't grow well in Indonesia
- The DUS test report issued by trusted Agency/ national authorities

Manoko – Highland DUS testing Station



- It is located on 1200 m above sea level → The agro ecosystem is suitable for highland crop (mostly vegetable and ornamental crops).
- Officially launched by the Secretary General Ministry of Agriculture on 14 Mei 2014
- The total area is 6 ha, consist of 1,5 ha for emplacement area and planting area \pm 4.5 ha.
- Facilities:
Open field, green house, screen house, seed laboratory, and middle term seeds storage



Mojosari – Lowland DUS testing Station



- It is located on 90 m above sea level → The agro ecosystem is suitable for lowland crop (mostly food crops).
- Establish in 2019, will be officialy launched by Minister of Agriculture by March 2021
- The total with area is ± 4 ha, consist of 1 ha for emplacement area and ± 3 ha planting area.
- Facilities: Open field, green house, screen house, seed laboratory, and seeds storage





- Previously DUS testing done by PVP examiner from research agency
- Since 2013 independent PVP examiner personnel was established
- In 2020 we have 18 PVP examiner personnels in several grade (junior, middle and senior PVP examiners)

Up grading PVP examiner capacity:

- ✓ Basic training on PVP (National training) → obligatory
- ✓ International basic training on PVP system and DUS test (cooperation JICA , Naktuinbouw, Korea)
- ✓ International advance training (UPOV and EAPVP forum)



■ Current situation

No specialty crops for Indonesia PVP examiner → should be able to conduct DUS test and examination for all crops assigned (ornamental, vegetable, food crops, and trees)

■ Challenge

To understand all crops assigned → agroecosystem, agriculture condition, morphological characteristics, habit, etc

Up grading PVP examiner knowledge and experience:

- ✓ DUS test simulation on new crops assigned
- ✓ Consulting with the local experts
- ✓ Advance training (specific on certain crops, and issue)

DUS TEST TRAINING

Cooperation with EAPVP forum

- ✓ Dus test training in advance in 2018 (Potato)
Expert from Naktuinbouw Netherland



DUS TEST TRAINING

Cooperation with EAPVP forum

- ✓ Dus test training in advance in 2019 (Cucurbitaceae)
Expert from MAFF - Japan





UNIFORMITY ASSESMENT CASE'S (section 2)





■ Current situation

No specialty crops for Indonesia PVP examiner → should be able to conduct DUS test and examination for all crops assigned (ornamental, vegetable, food crops, and trees)

■ Challenge

To understand all crops assigned → agroecosystem, agriculture condition, morphological characteristics, habit, etc

Up grading PVP examiner knowledge and experience:

- ✓ DUS test simulation on new crops assigned
- ✓ Consulting with the local experts
- ✓ Advance training (specific on certain crops, and issue)

Latest issue: uniformity assessment on Maize



- ✓ Maize : food crop with the highest number of PVP application in Indonesia → 100 varieties has been granted PVP, and many more in the DUS test progress
- ✓ Different type's of maize were applied for DUS test:
 - ✓ Hybrid (single cross)
 - ✓ Hybrid (three way cross)
 - ✓ Inbred Lines
 - ✓ Synthetic
- ✓ Uniformity assessment using off type → in some case using variants / standar variation analysis
- ✓ Variations (un-uniformity) appear in some stage only* in several cases variations appear only in some characteristics

Case 1



The non-uniformity expression the characteristic of anthocyanin in panicles (glume and anthers)



variations in anthocyanin of glume and anthers

Case 1...



But sometimes its produce uniform ears (at harvesting time)



Case 2



uniformity in vegetative phase



Case 2 ...



variation in anthocyanin of panicle and ears (size, length and diameter)

Case 3



- ❖ variation in anthocyanin only on root characteristics (note 3 (weak) until note 9 (very strong) anthocyanin were exist in 1 variety), while other characteristics give the same expressions
- ❖ Can be express different state for the same variety at the same location (at the same year)



Additional case uniformity



Capsicum (Intermediate between self and cross pollinated crops)



Curly type that we examine

Un -uniformity case on capsicum



Based on visual observation of QL, PQ, and QN characters, it was found off type with upright orientation and plants with larges chilies. In vegetative phase we found off type with an upright orientation (6 plants), while in the generative phase, 6 plants with large chilies even it is a curly type variety.



2 kind off type plants?



PVP examiners collect all data for every un-uniformity case.

DUS test report presented at PVP commission meeting.

The committee conclude the decision whether it was uniform or not.

Further advise are needed..

Thank you



Thank you

TERIMAKASIH