World Vegetable Center

Development Action Planning (DAP)

35th International Vegetable Training Course "Vegetables: From Seed to Table and Beyond" Module 1

World Vegetable Center – ESEA/Oceania

30 September 2016

❖ Introduce myself

- Name: **Nguyen Dinh Thieu**
- Country: Vietnam
- Organization: Horticulture Division
  Field Crops Research Institute

- Main responsibility: Breeding new vegetable varieties

Organization

Field Crops Research Institute

❖ **The topic**

➢ I chose the topic of Vegetables breeding: ***Breeding method and screening of varieties***. Why? Because it's suitable with my job.

➢ Contents:

✓ Basic applied aspects of vegetable breeding and seed production.

✓ Variety screening for design traits.

✓ Practical indigenous vegetable breeding

❖ Present your action plan development

➢ **Title*: Breeding new tomato varieties with heat tolerance for spring – summer and autumn – winter crops***

Because, my country has 4 main season (Spring, Summer, Autumn and Winer) and seasonality main vegetables production in Vietnam

Season	Main vegetables
Spring-Summer (February-May)	Cucurbits: cucumber, melon, pumpkin, gourd, bitter gourd… Solanaceous: **tomatoes,** peppers, eggplant … Cruciferous: bok choy, mustard, radishes Apiaceae: Carrots ….. Legumes: snake bean, cowpeas, beans tubers
Summer (May-August)	Cucurbits: melon, pumkin, bitter gourd… Solanaceous: **tomatoes,** peppers, eggplant … Cruciferous: bok choy, mustard, radishes Legumes: snake bean
Autumn (August-October)	Cucurbits: cucumber, pumkin, wax gourd, bitter gourd… Solanaceous: tomatoes, peppers, eggplant … Cruciferous: bok choy, mustard, radishes… Legumes: cowpeas, beans tubers
Winter (October- next January)	Cucurbits: cucumber, melon, pumpkin, wax gourd… Solanaceous: tomatoes, peppers, Cruciferous: radishes, cabbage, kohlrabi …. Apiaceae: Carrots ….. Legumes: cowpeas

Limitations of vegetable breeding activities

- According to statistics in 2015: to produce 15 million tons of vegetables, farmers need more than 150,000 tons of seeds of all kinds.
- Of which nearly 80% of seed are imported from the world's leading corporations such as Monsanto (US), Syngenta (Switzerland), Takii and Sakata (Japan), East West (Netherlands) ...
- Carrots, cabbage has not been bred in the country.
- The tomato, cucumber, muskmelon,… by the research institute. But it's not bred to meet the requirements of domestic market and exports (productivity and quality).
- Lack of resistance varieties (high temperatures, pests, disease) to grow in off season

- Difficult competition with imported varieties of vegetables.
- So I conducted research: *Breeding new tomato varieties with heat tolerance for spring – summer and autumn – winter crops.*

❖ Objectives

- Breeding inbred and F1 hybrid tomato varieties have ability heat tolerance for spring-summer and autumn-winter with large fruit size (80-100g/fruit), fruit yield 50-55 tons/ha; nice fruit shape and bright red color when ripened, Brix degree 5.0-5.5% for fresh eating and processing.

❖ Activities:

Research the main breeding:

- Choose pure breeding: Import, breeding and selection, isolation produce inbred lines from the source material above.
- Applied by the method of individual selection, isolation created inbred lines (selection method Pedigree).
- Breeding hybrids: Research of the ability to combine, study of genetic diversity for selecting the parents for high heterosis.
- Applied by the method of the hybrid single pair of parents for high heterosis.
- Or application of gene transfer technology using AND molecular marker for gene resistances. Special resistance to yellow leaf curl virus "Tomato yellow leaf curl virus ratio"

- The experiments will deployment on field Horticulture Division
- Deployment time: about 5-6 years
- Resource financial: about $ 300.000 - 400.000
- Resource human: 1 Master, 2 engineer and 3 worker

❖ **Challenges:**

- Resource genetic variety isn’t enough in research.
- Financially very important let complete it.

Practising action

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My main responsibility: Breeding new vegetables

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Melo production in net house, apply hingh technology

Tomato production in net house, apply hingh technology

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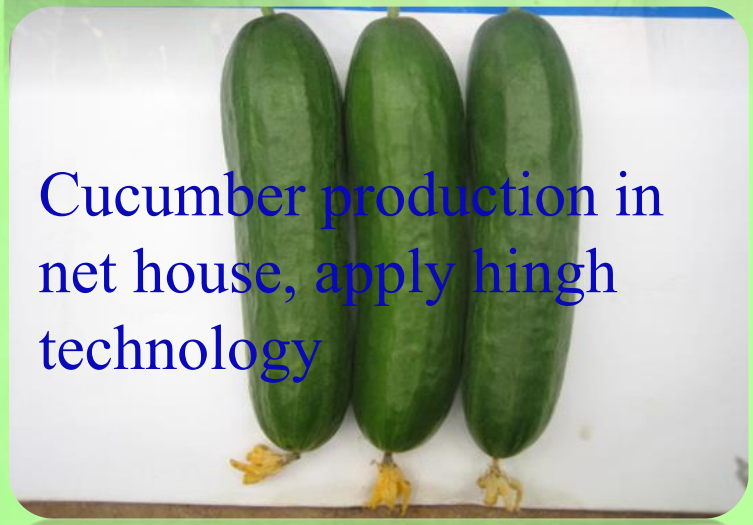

Cucumber production in net house, apply hingh technology

Thank You Very Much!