

# THE STUDY OF SURVIVAL RATES AND UNIT COSTS OF VETIVER GRASS

TRANSPORTATION AND PACKING TO SCHOOLS  
UNDER THE BPP ACROSS THE COUNTRY  
INCLUDING PROGRESS OF THE PROJECT

by

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# Objectives

1. Proper packing for long distance distribution
2. Finding transporting factors effecting survival rate
3. Finding unit cost for different types of transportation
4. Project evaluation

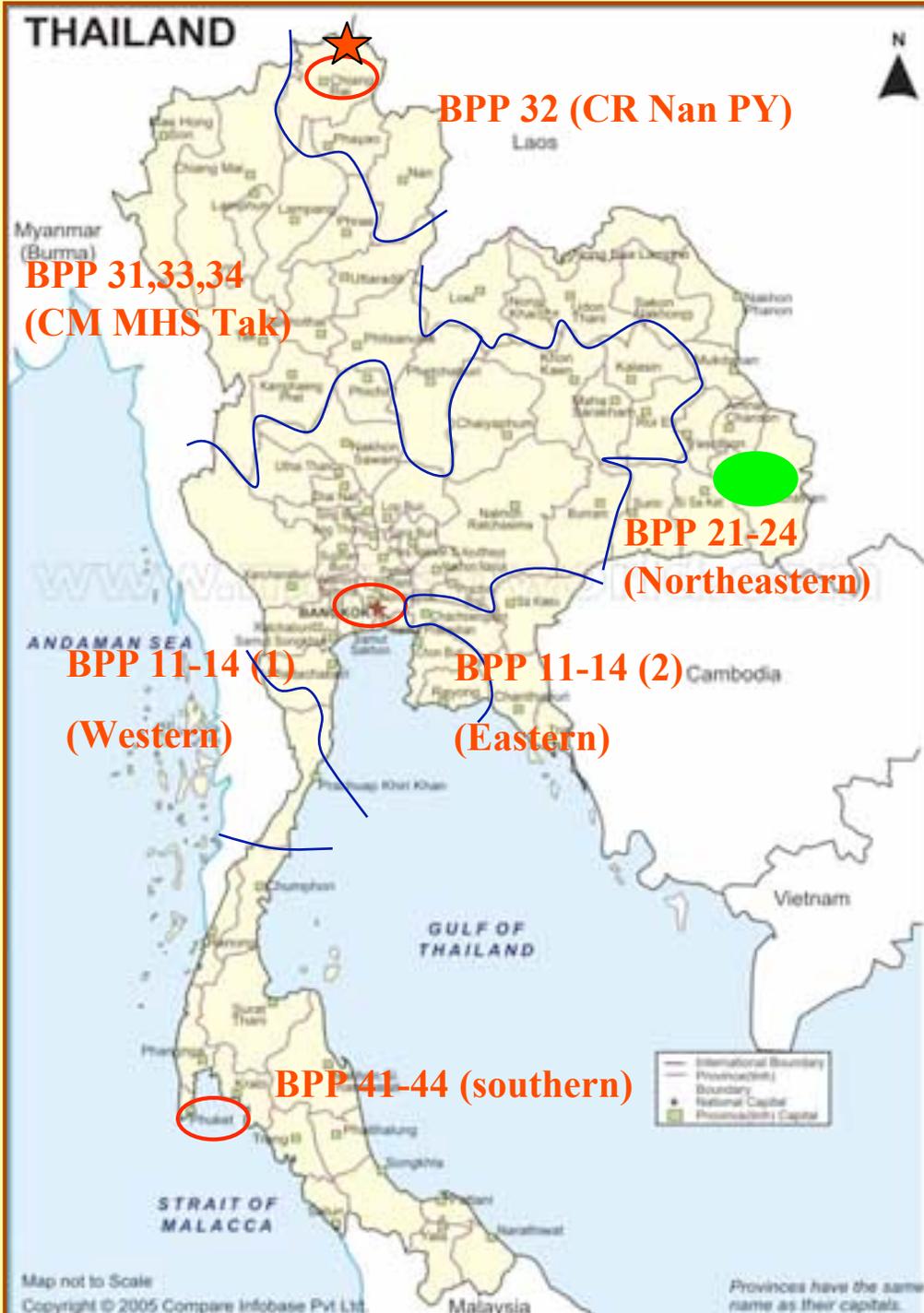
# Activities

1. Deliver 1,464,000 slips
2. Final destinations 183 schools
3. Transport by truck and airplane

# Map of the Kingdom of Thailand



-  Thailand
-  Chiang Rai & Doi Tung Development Project



### Legend

-  Airports
-  Truck Transportation
-  Operating region

# Transportation to Destinations

5 main routes:

1. BPP 11-14 (eastern and western areas)
  - by plane CR - BKK, by truck to final destinations
2. BPP 41-44 (southern areas)
  - by truck CR – CM, by plane CM - PHUKET, by truck to final destinations
3. BPP 21-24 (north-eastern areas)
  - by truck to final destinations
4. BPP 31,33, and 34 (northern areas exclude Chiang Rai)
  - by truck to final destinations
5. BPP 32 (Chiang Rai, Nan, and Phayao)
  - by truck to final destinations

# Methods

1. Demonstration and exhibition
2. Transportation by truck
3. Transportation by airplane

# Methods

## 1. Demonstration and exhibition

- Display during 4-8 June 1996
- at Suan Phueng School, Rachaburi province
- Exhibition and Training on transplanting techniques using seedlings with different sizes: 1.5, 2, 4 and 6 months old

# Methods

## 2. Transportation by truck

- Seedlings 3-4 months old in clumps → separate into slips, wrap with paper and pack in sack
  - 500 slips/wrap, 4 wraps/sack = 2,000 slips/sack
- Deliver 4 sacks to each school = 8,000 slips/school

# Methods

## 3. Transportation by aircraft

- Seedlings 3-4 months old in clumps → separate into slips, wrap with paper and pack in sack
  - 500 slips/wrap, 8 wraps/sack = 4,000 slips/sack
- Deliver 2 sacks to each school = 8,000 slips/school

# Evaluation

1. Recording survival rate, sack temperature, transporting time
2. Taking pictures
3. Setting the scores / indicators for progress evaluation

1 = to be improved    2 = fair

3 = good                      4 = excellence

# Results

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## 1. Knowledge transfer

- 93 officials from the BPP were trained on propagation techniques
- Demonstration and exhibition on transplanting techniques was display in June 1996 at Suan Phueng School, Rachaburi province

# Results

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## 2. Transportation

1. Sack temperature at arriving time had no effect on survival rate
2. 99% of all seedlings were successfully transported although some seedlings were partially damaged but could be recovered within 2 weeks
3. From 1-3 days of distribution time, seedlings were in good conditions for planting

## 3. Transporting Expense

- The total expense for dispatching 1,464,000 slips was 167,799.60 bahts or 0.1144 bahts each
- The expense was categorized into 3 groups:
  1. Equipment and labor cost
  2. Airfreight
  3. Fuel



## 4. Production and Support

After 9 years of implementation (1996-2005)

- More schools involved in the planting activities from 183 to 193 schools
- 12,366,713 slips were planted
  - 65% self-produced and 35% supported by Land Development Department (LDD)

## 4. Progress evaluation

1. Almost indicators were scored at 3-4.
2. Minimum score was at 2: under the communities awareness, public relations and study tour
3. Average score at 3.1 considering “Good”

# Suggestions

## 1. Social

- Promote public relations & advertisement
- Facilitate participatory and awareness in cultivation and husbandry
- Organize activities, training, study tour and exhibition

# Suggestion

## 2. Economics

- Disseminate knowledge on alternative utilization of Vertiver for household usages and extra income such as roof thatching, fodder, handicrafts etc.

# Suggestion

## 3. Environment

- Encourage community's awareness on importance of Vetiver for soil and water conservation, soil erosion protection, sediment reduction, riverbank protection, maintain soil moisture, and manure etc.

# Suggestion

## 4. Policy

- Involved organization should continuously promote, support and organize trainings for all stakeholders
- Master plan on natural and environmental conservation should be established at local community level
- Monitoring and evaluation should be conducted constantly
- Select appropriate varieties for each site

# Exhibition and Opening



HRH Princess Maha  
Chakri Sirindhorn



# Vetiver seedlings preparation

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# Preparation for transportation



Trim leaves and roots of 3-4 months old seedlings

# Preparation for transportation



Separate clumps and arrange 500 slips/pack

# Preparation for transportation



Soak in plant growth regulator with fungicide for 2 minutes

# Preparation for transportation



Wrap with paper and pack in sack

- 500 slips/wrap, 4 wraps/sack = 2,000 slips/sack (truck)
- 500 slips/wrap, 8 wraps/sack = 4,000 slips/sack (plane)

# Transporting by truck



Cover the seedlings with vinyl sheet when transporting by truck

# Transporting by plane



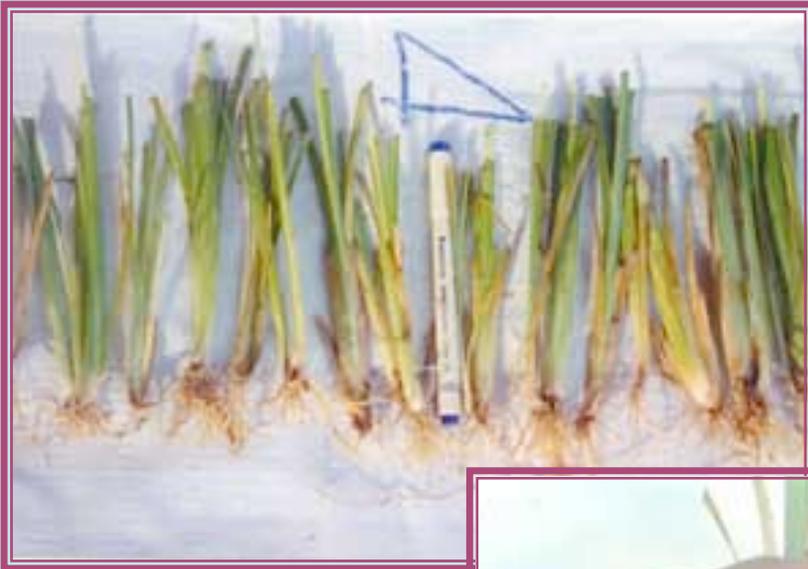
Delivering to Airport and loading in containers

# Preparation after arriving



Remove seedlings from containers and transfer to nurseries  
or directly to planting sites

# Preparation for transplanting



Seedlings' condition at the destinations

# Vetiver grass on roadsides



Planting as natural  
barrier and soil erosion



# Vetiver grass as Agro-forestry



for ground covering,  
soil moisture maintenance  
and weed control purposes

# Vetiver grass at riverbank



Prevent soil erosion, reduce soil sediment,  
trap residue, reduce chemical toxicity

**THE END**

**THANK YOU VERY MUCH FOR  
YOUR KIND ATTENTION**

**SAMART SUMANOCHITRAPORN**