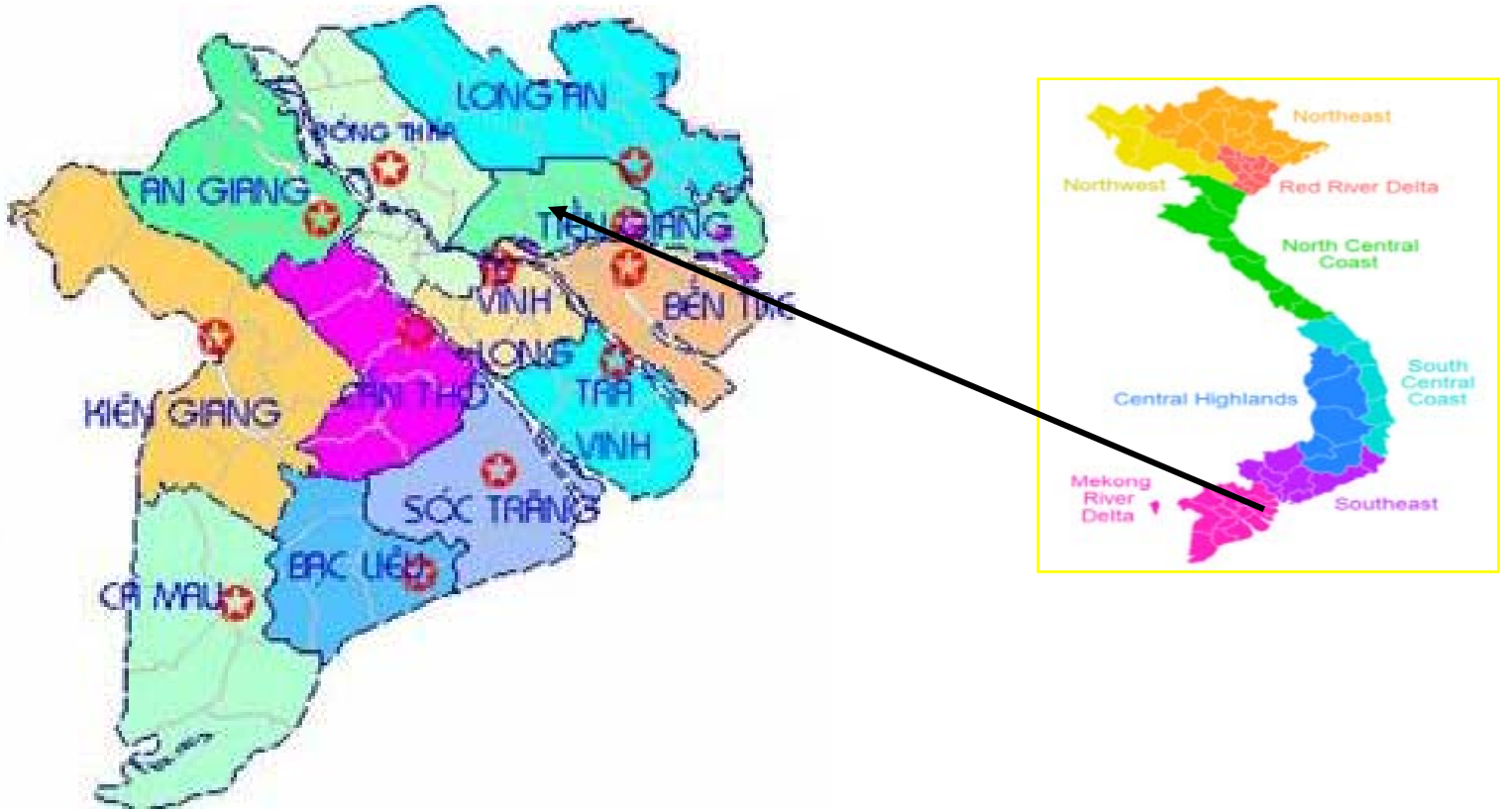
BACKGROUND

- **Mekong River Delta (MRD) consists of provinces being Long An, Tien Giang, Ben Tre, Vinh Long, Tra Vinh and Dong Thap; Can Tho, Hau Giang, An Giang, Soc Trang, Bac Lieu, Kien Giang and Ca Mau.**



BACKGROUND

Annual rice output of the 6 Northern provinces of Hau river: 8 million tons, occupying around 42 and 22% of the whole MRD and the country, respectively.

Year	2002	2003	2004	2005	2006	2007
Whole country	34447.20	34568.80	36148.90	35832.90	35849.50	35867.50
Whole MRD	17709.60	17528.00	18567.20	19298.50	18229.20	18637.10
6 Northern provinces of Hau river:						
Long An	1738.60	1772.80	1902.70	1934.20	1769.40	1950.60
Tien Giang	1285.30	1268.00	1315.30	1303.20	1214.30	1306.60
Ben Tre	392.10	381.00	368.10	341.40	332.50	304.80
Tra Vinh	1005.90	1045.60	1033.90	1028.80	1009.80	929.80
Vinh Long	963.30	936.40	963.60	973.00	932.30	811.10
Dong Thap	2178.70	2214.90	2420.90	2606.50	2404.90	2545.40
Total output of the 6 provinces	7563.90	7618.70	8004.50	8187.10	7663.20	7848.30
Compared with the whole country (%)	21.96	22.04	22.14	22.85	21.38	21.88
Compared with the whole MRD (%)	42.71	43.47	43.11	42.42	42.04	42.11

STATUS OF POST-HARVEST LOSSES OF RICE IN THE MRD

Harvesting time	Harvesting method	Use of thresher	Sun-drying	Mechanical drying	Milling	Total (%)
Right time (0%)	Manual/ Rice reaper (2,9%)	Yes (1,5%)	In rice field (8,7%)		Average (4%)	17,1
			On ground (4%)			12,4
				Properly (0%)		8,4
				Improperly (5%)		13,4
	Combined harvester (1,2%)	No (0%)	On ground (4%)			9,2
				Properly (0%)		5,2
				Improperly (5%)		10,2
Late (3,5%)	Manual/ Rice reaper (2,9%)	Yes (1,5%)	In rice field (8,7%)		Average (4%)	20,6
			On ground (4%)			15,9
				Properly (0%)		11,9
				Improperly (5%)		16,9
	Combined harvester (1,2%)	No (0%)	On ground (4%)			11,7
				Properly (0%)		8,7
				Improperly (5%)		13,7

APPLIED RESEARCH ON 50-TONS FLATBED DRYER

1. Introduction

- Many high capacity flatbed dryers have been built up and used quite widely for drying paddy in Tien Giang province.

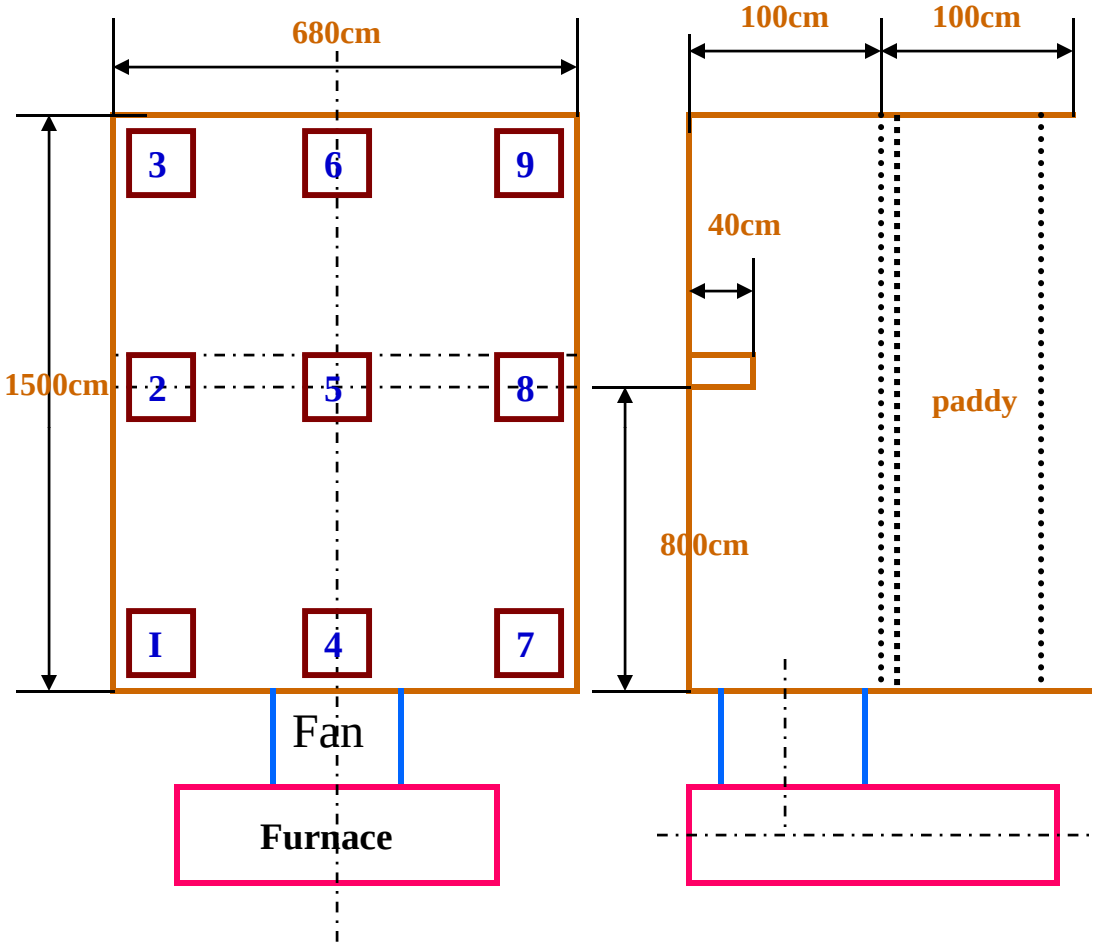
- Characteristics of the high capacity flat bed dryers:
  - * High capacity: 25 to 50 tons/batch
  - * Very thick grain layer: 60-120 cm
  - * Low drying air temperature: 35-38^{o}C
  - * No reversal of grains or drying air
  - * Long drying time: 40-60 hours/batch

- Many post-harvest scientists are concerned about drying quality and quality of the rice dried by the dryers.

Objective of the study

- To study effects of the drying method on drying quality and rice quality.
- To give proper recommendations.

APPLIED RESEARCH ON 50-TONS FLATBED DRYER



2. Materials & method

- Indica paddy VND 95-20 at 22.2-27.7%wb from Summer-Autumn season of 2010 in Tien Giang was dried at temp. of 35-38^{o}C (drying temp. at plenary of 44.5-49.5^{o}C) to reduce to 9.80-13.80%wb for 46.5 hours.
- RH and drying air velocity: RH = 79.4%-100%; v = 0.13m.s^{-1} - 0.22m.s^{-1}.
- MC of the paddy at heights of 10, 40, 55, 70 and 90 cm of different positions was detected at time intervals of 0, 5, 10, 15, 20, 30 and 46.50 hours.
- Tempering 24 hrs before out-loading the paddy
- Evaluated rice quality: Milling yield and head rice yield.

APPLIED RESEARCH ON 50-TONS FLATBED DRYER

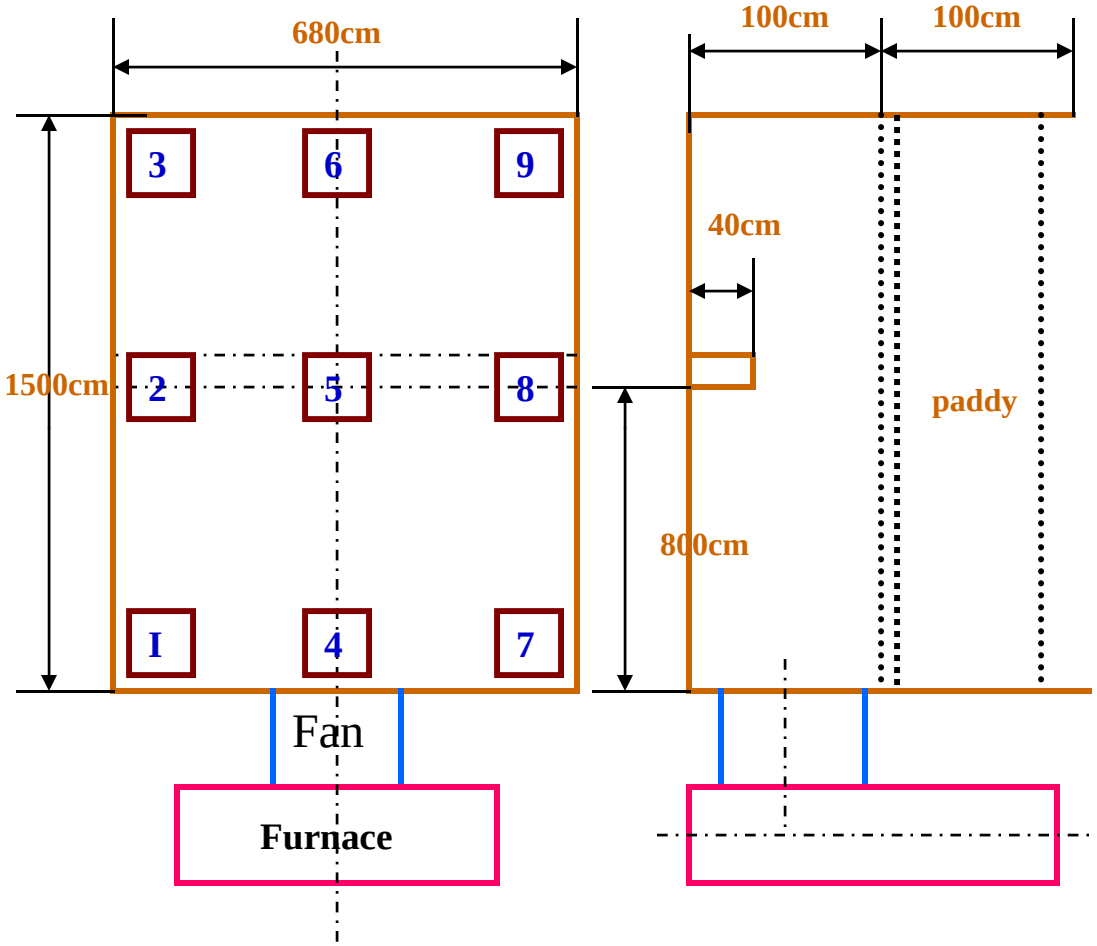
Instruments for the experimental measurements

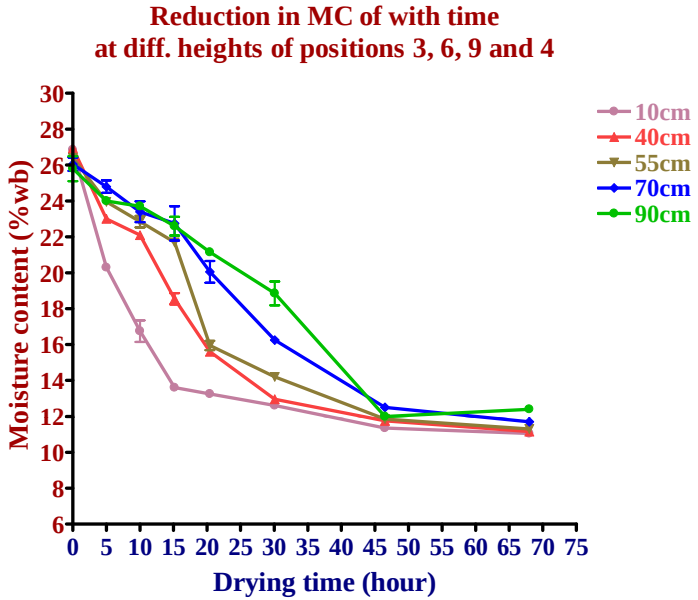
- Paddy sampling pole (Vietnam)
- Instrument for measuring velocity, temperature and RH of drying air: Anemometer - Extech Instrument – Hygro 3 in 1.
- Electronic scale: Kett – PM 6040-3C (Japan)
- Moisture tester: Kett – Rice Tester – L (Japan)
- Rice milling kit – Yamamoto (Japan).

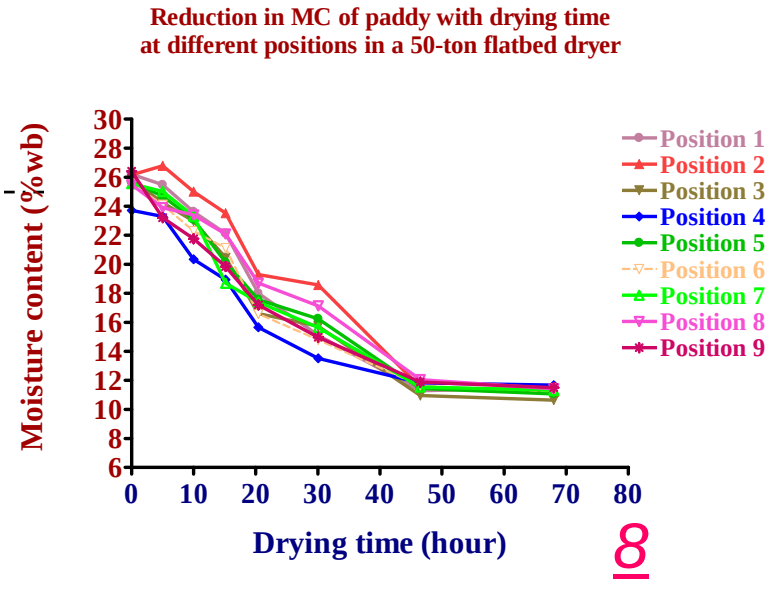
Measurements of temperature, velocity and RH of drying air using an anemometer

Rice milling kit – Yamamoto (Japan)

APPLIED RESEARCH ON 50-TONS FLATBED DRYER







3. Results and discussion

- Variation in MC of paddy at different layers at a certain drying time was very high (fr. 4 to 12%wb) and got maximum at drying time of 15hrs.
- Differences in final paddy MC at diff. layers were not high, 2 to 3%wb.
- Paddy at positions opposite to the fan (3, 6, 9 and 4) is dried quicker than that at the other positions.
- Difference in paddy MC at positions increased in the first 30 hours (max. of about 3-5%wb) and then decreased to the end (about 1.5-2%wb).
- Differences in final MC of the paddy at positions in the dryer were not high, 2 to 3%wb.

Paddy samples	Milling yield (%)	Head rice yield (%)
Paddy at the depth of 10cm	65.14	60.79
Paddy at the depth of 30cm	64.73	60.66
Paddy mixed from different depths of the dryer	64.80	60.30
Paddy from the Winter-Spring rice crop in Long An province harvested on 25 June 2010	63.57	44.79

4. Conclusion

In comparison with lower capacity flatbed dryers:

- 50-ton flatbed dryers could meet practical needs of drying a large amount of wet paddy (28-30%wb) in a very short time.
- It could help to reduce post-harvest losses of rice
- It could bring in higher profit to users.