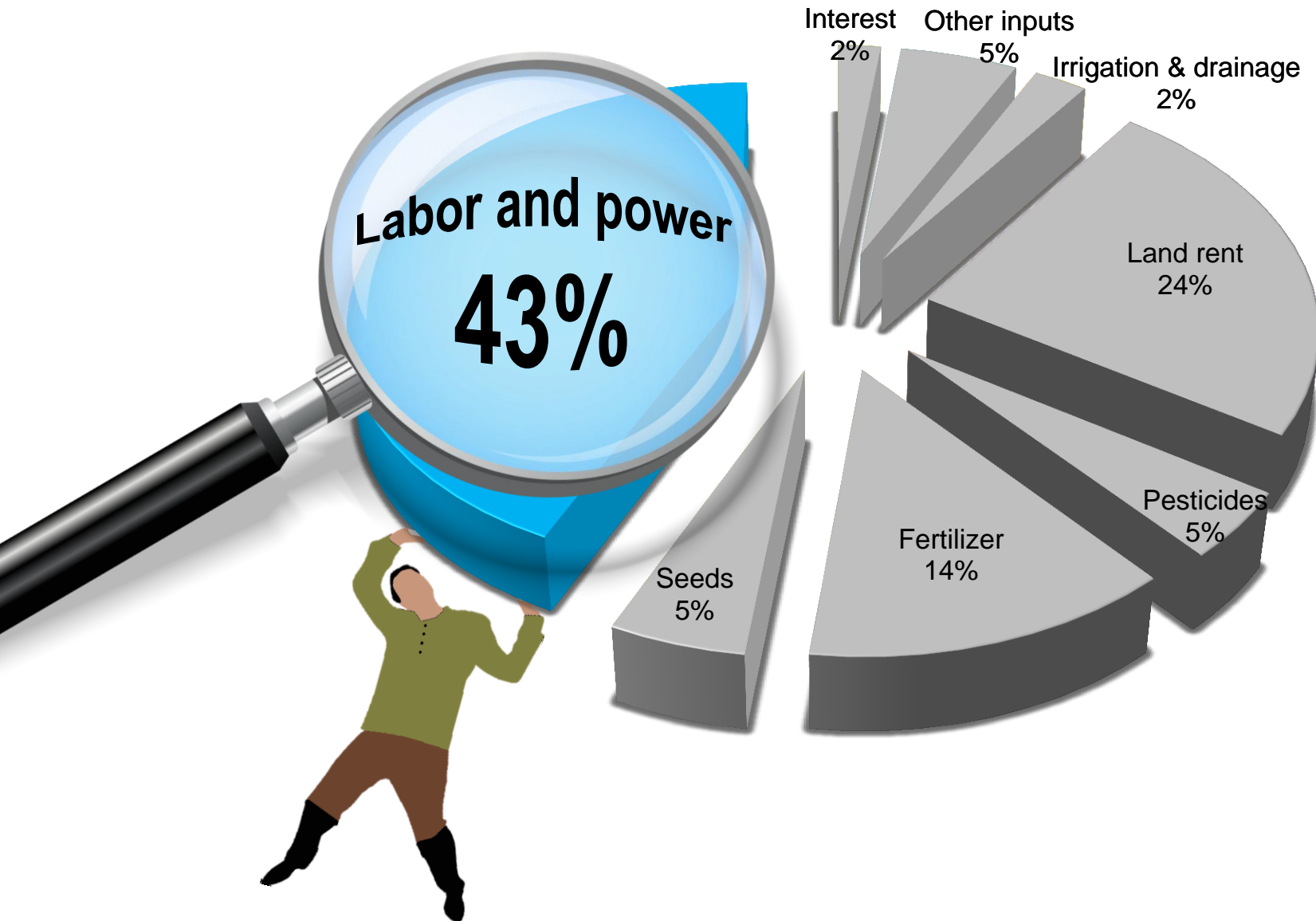


Distribution (%) of rice production cost, 2011-2012



By Hand or **Machine:**

*2011 & 2012 Labor & power use
in rice production*

IAArida JCBeltran, FHBordey
SED Staff



In this presentation....

Who?

How is it done?

How long it takes?

How much it costs?

What's NEXT?

RBFHS Data

❖ **2011 wet season and 2012 dry season**

❖ **Sample size (n): 2500** sample farmers from **33** provinces

- **2399*** for WS, and
- **2051*** for DS

** 54: temporarily stopped farming; 38: crop failure; 9: poor survey returns in Brgy. Solon, Maguindanao*

** 259 temporarily stopped farming, 3 rice -ratoon farmers, 184 have rice and other crops as income source and 3 have no harvest or area planted*

Who



Types of Labor

1. OFE - Operator/ Family/ Exchange

2. Hired

3. Permanent

**How is
it done**





Seeds and seedling Land preparation Crop Establishment

Labor components

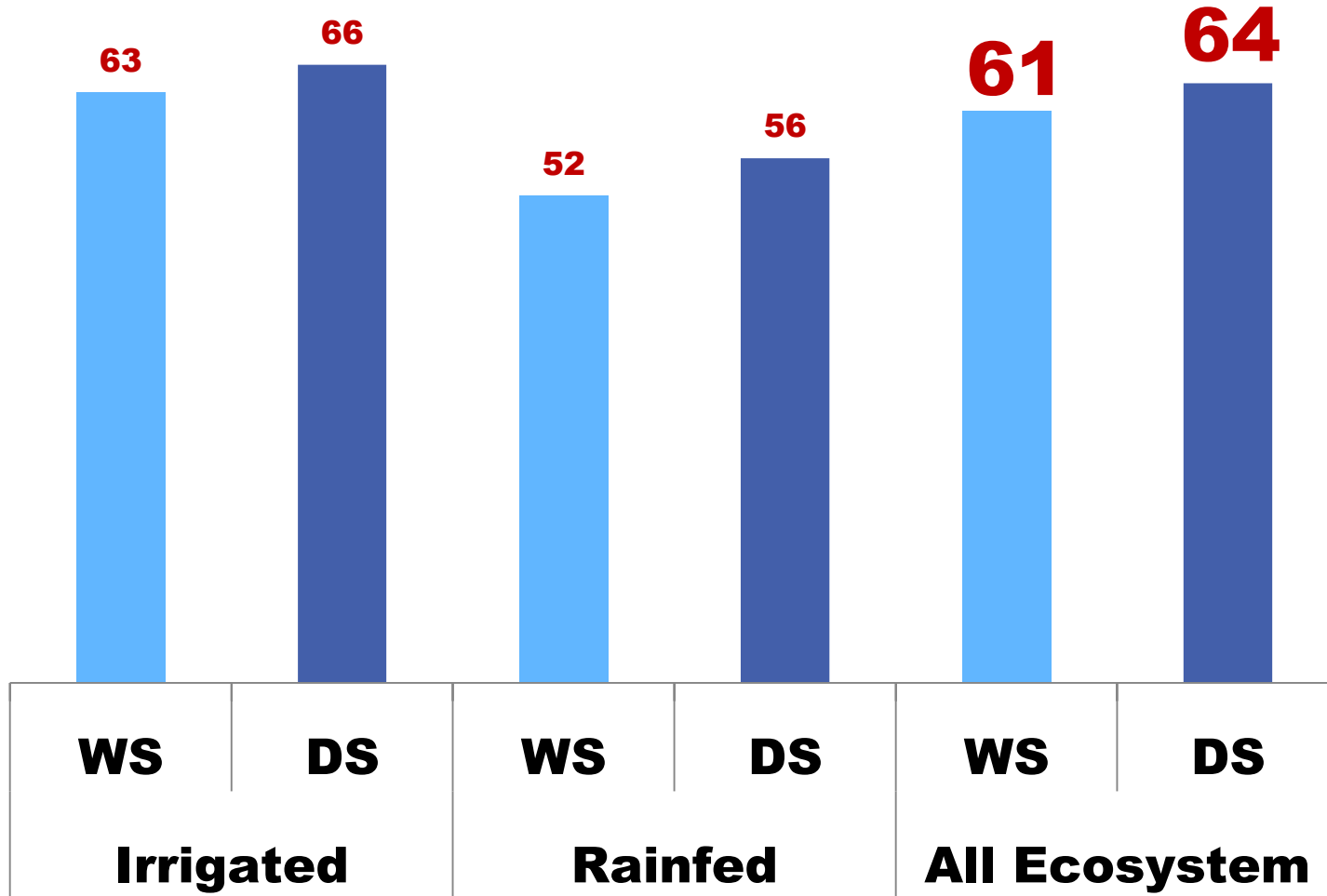
Crop care & maintenance Harvesting & Threshing Post harvest



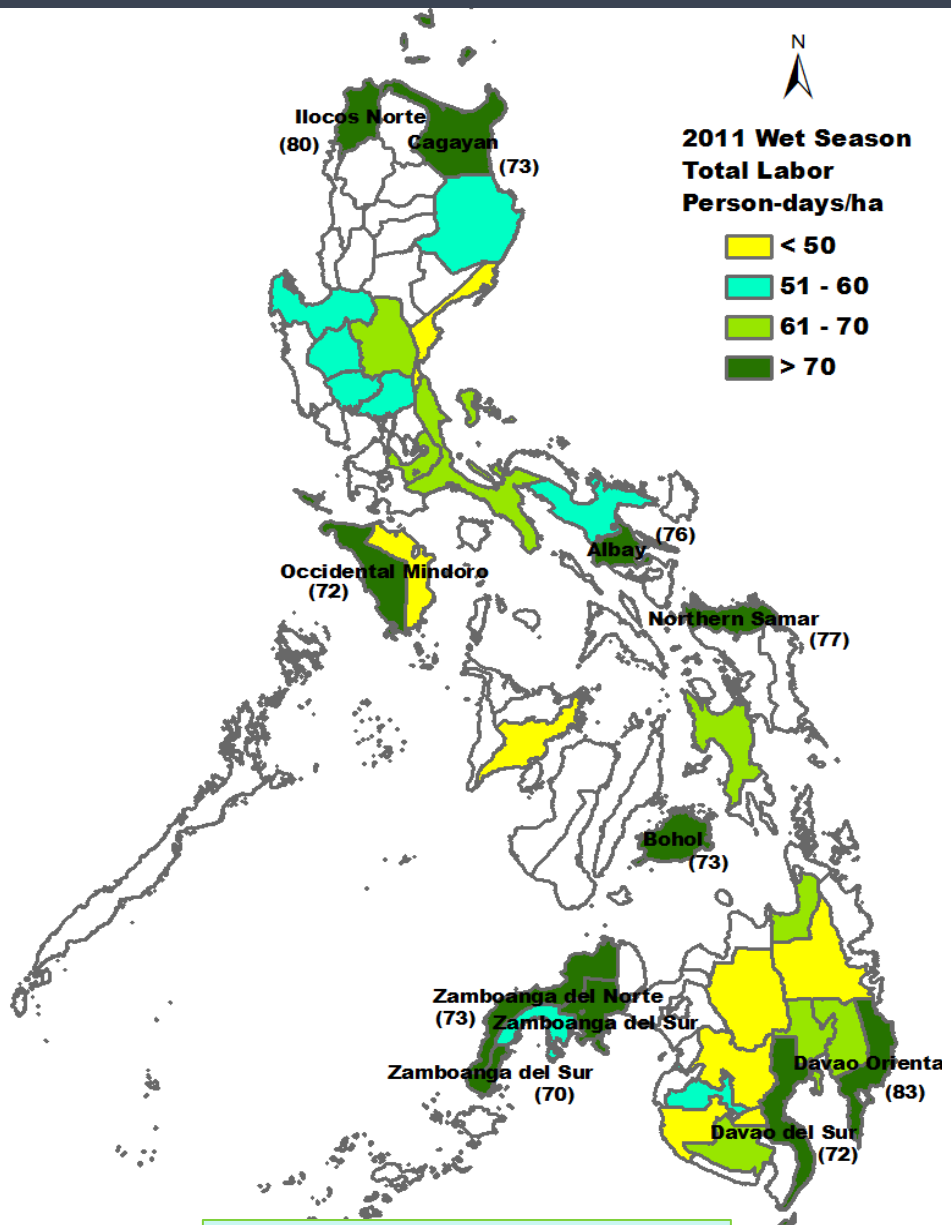
**How long
it takes ?**



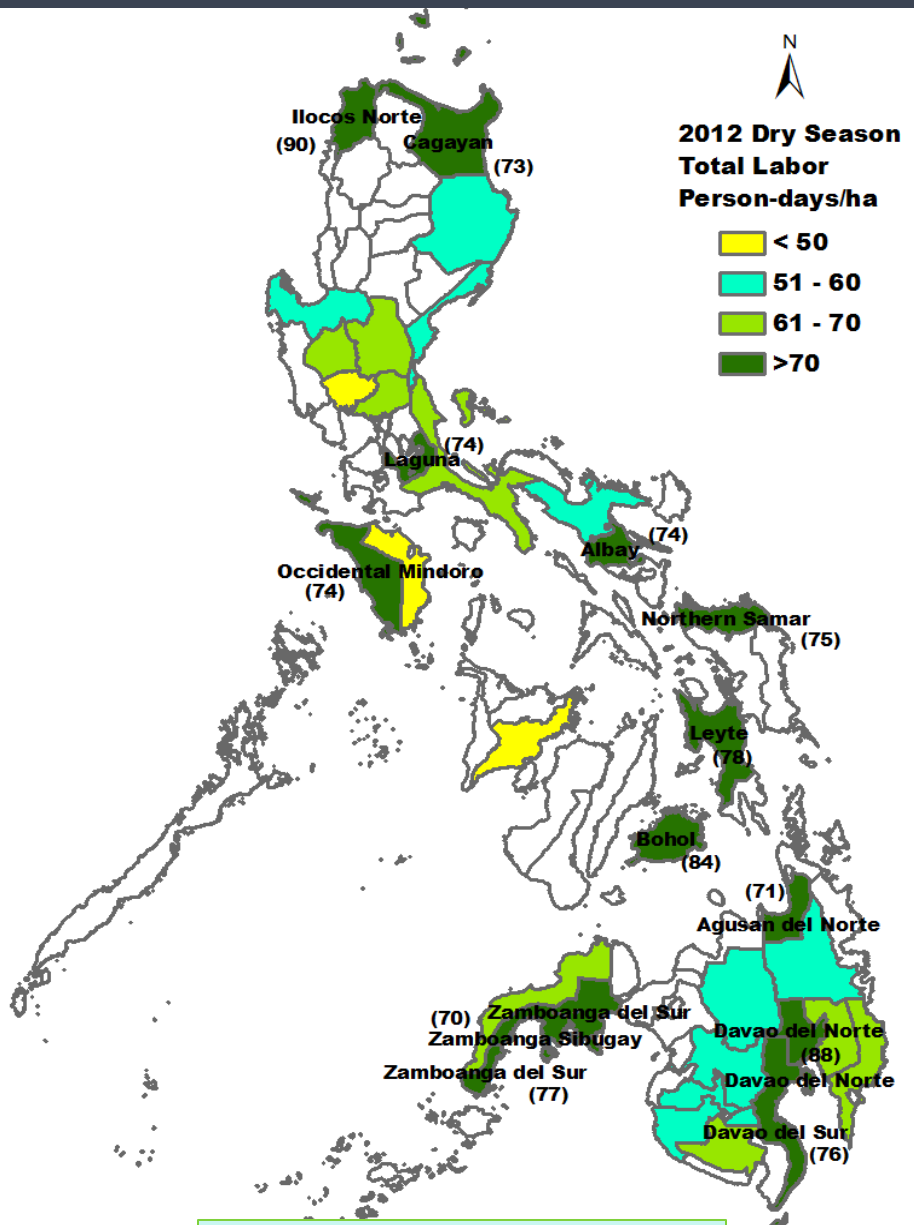
Labor use (person-days/ha) by ecosystem, 2011-2012



Labor use (person-days/ha) by season



Ave. PD/ha: 61

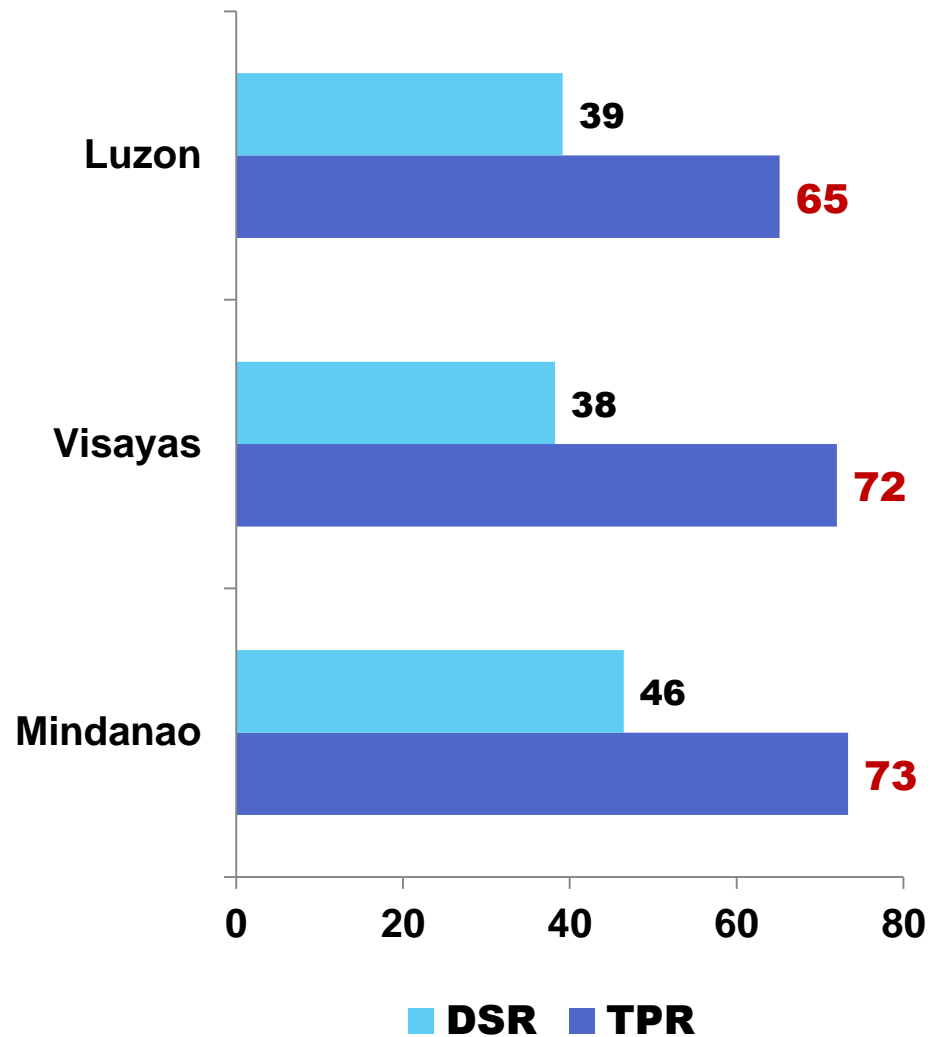
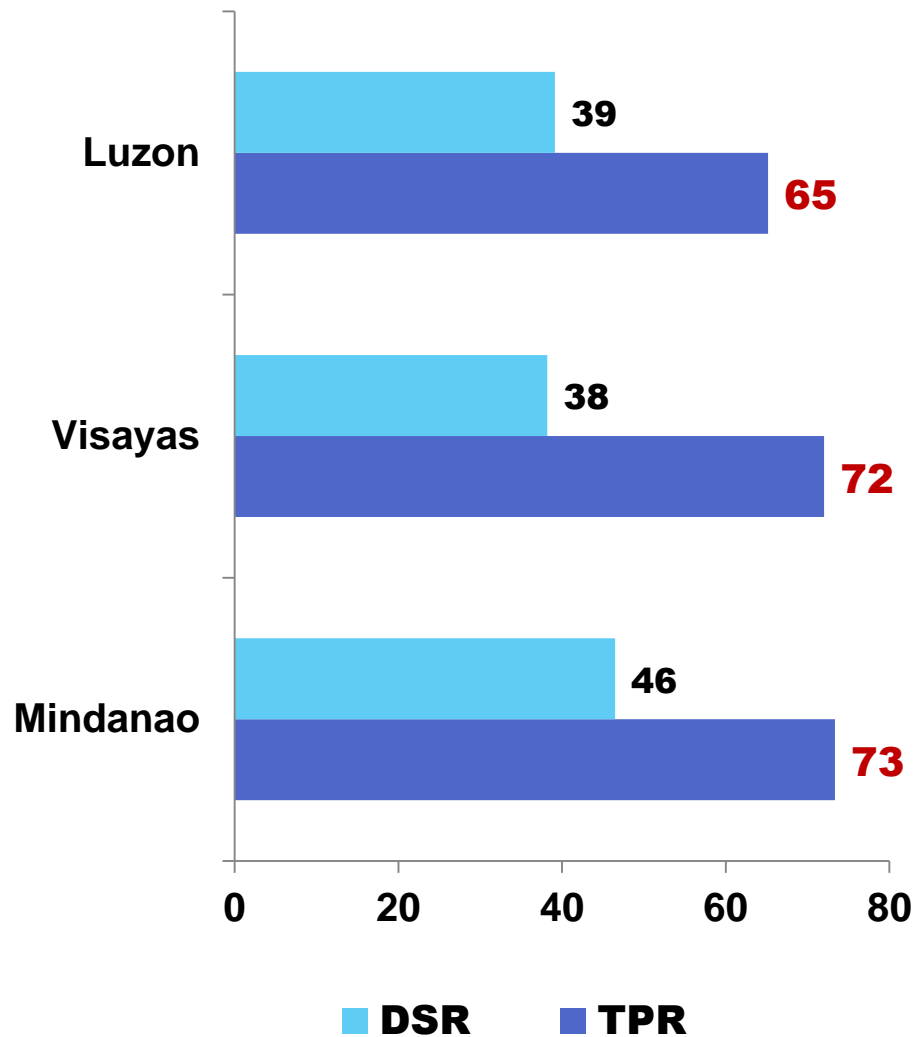


Ave. PD/ha: 64

Labor use (person-days/ha) by type of crop establishment

2011 WS

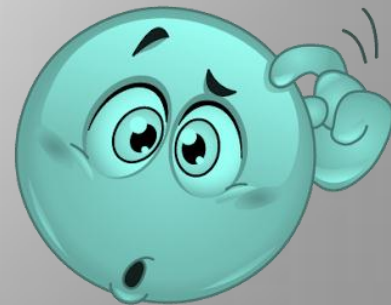
2012 DS



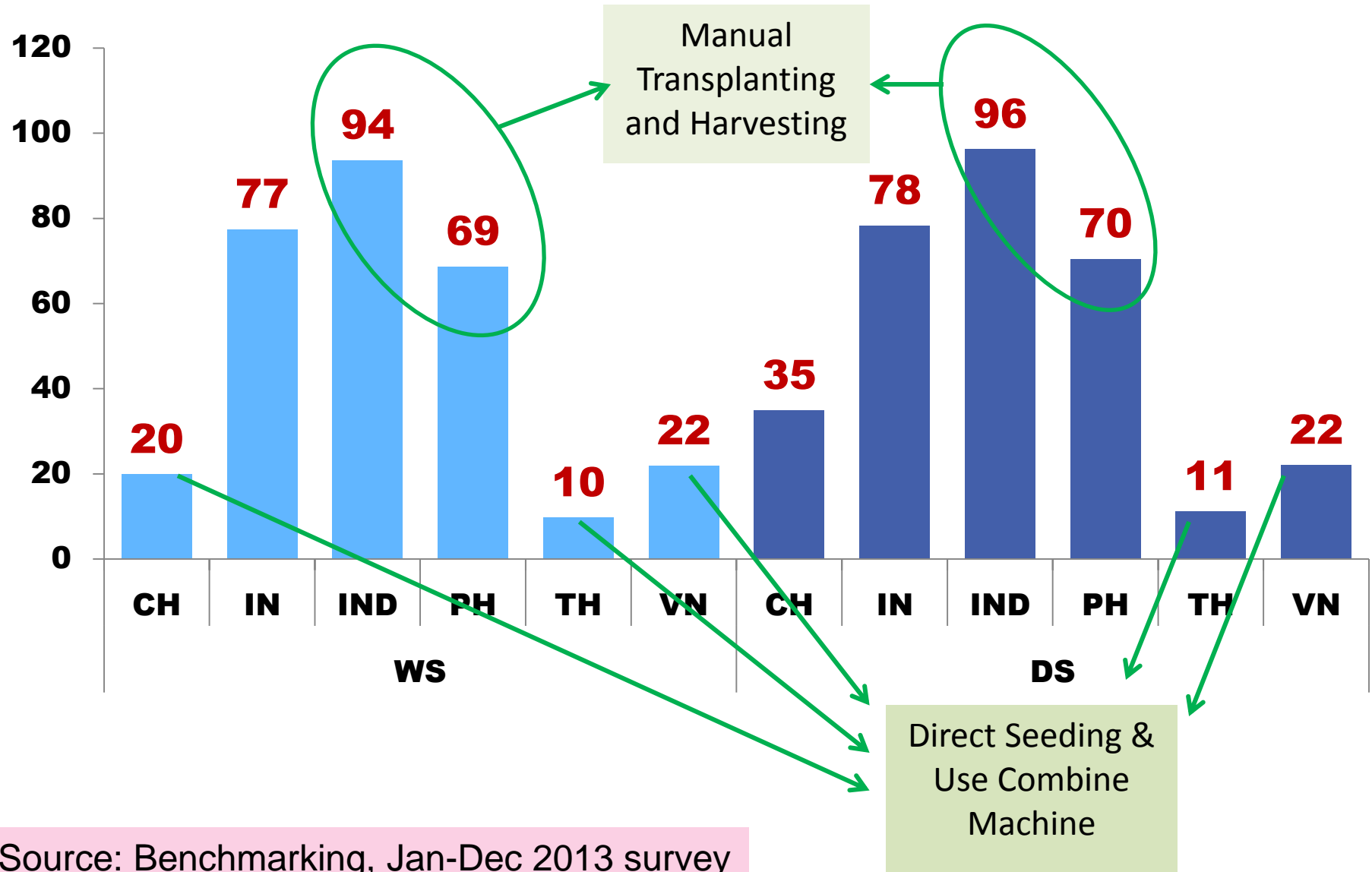
Ave. Person-days/ha

WS = 61 PD/ha

DS = 64 PD/ha



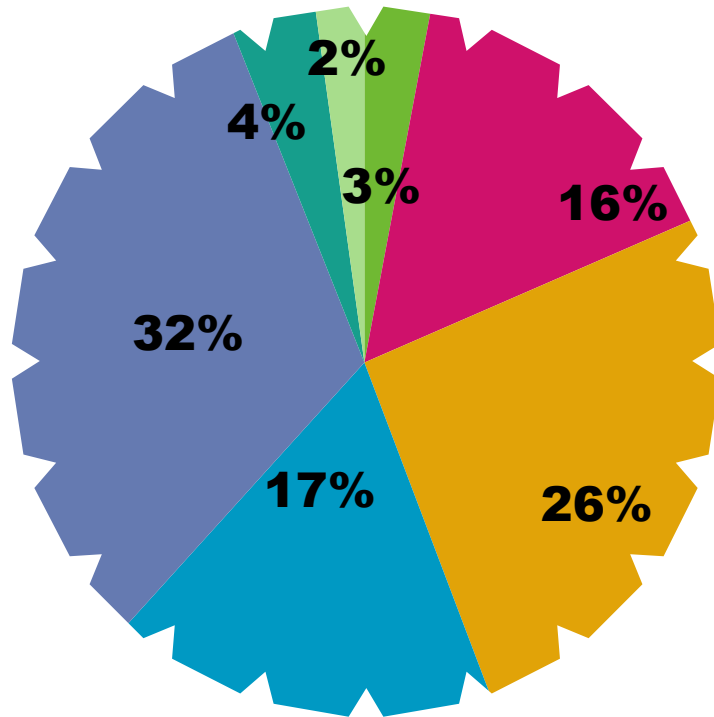
Comparison of labor use (person-days/ha) across countries



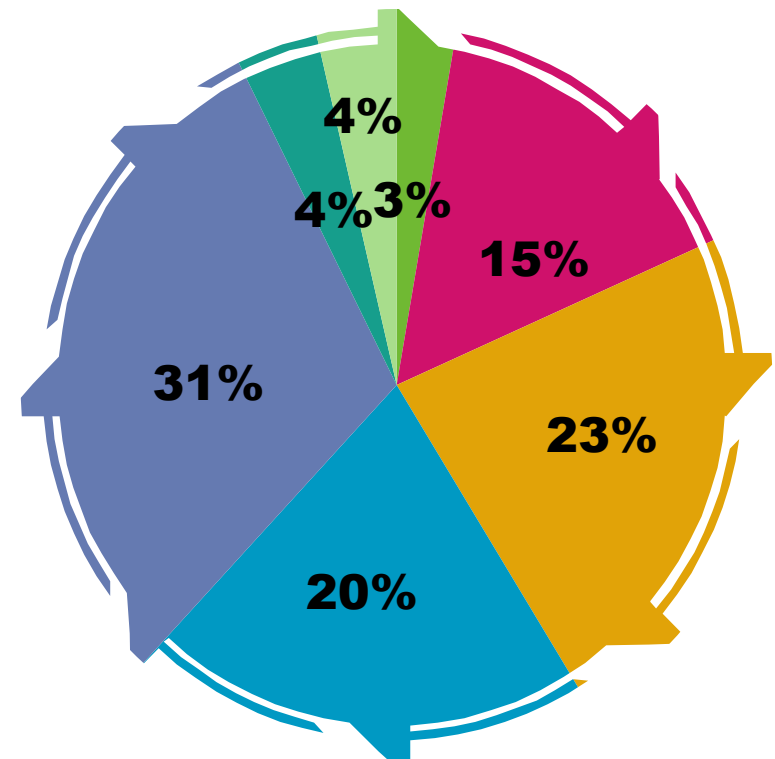
Source: Benchmarking, Jan-Dec 2013 survey

Percent distribution of labor use by type of major activity, 2011-2012

Wet Season



Dry Season

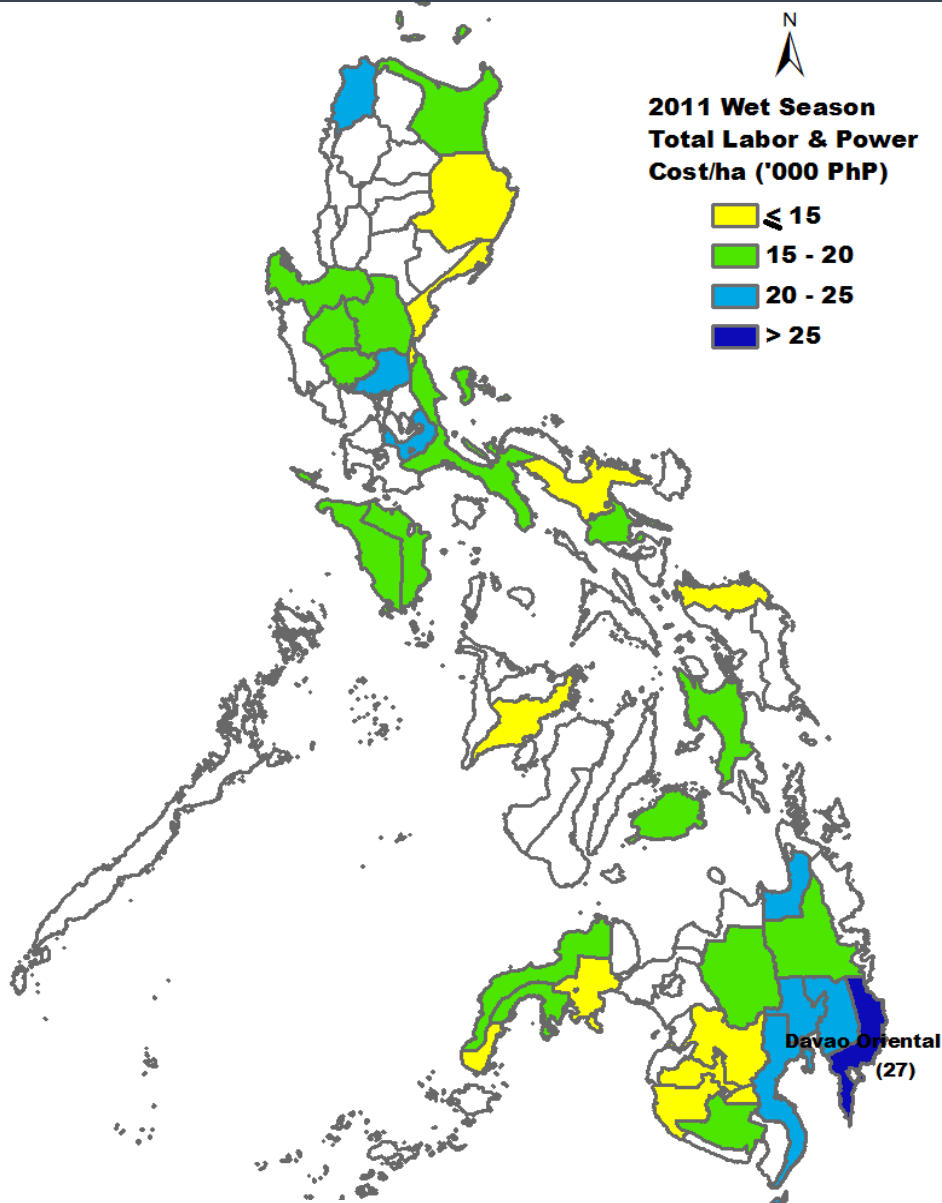


- Seed Estab.
- Crop Estab.
- Harv. & Thresh.
- Combined Labor (PL)
- Land Prep.
- Crop Care & Maint.
- Post Harv.

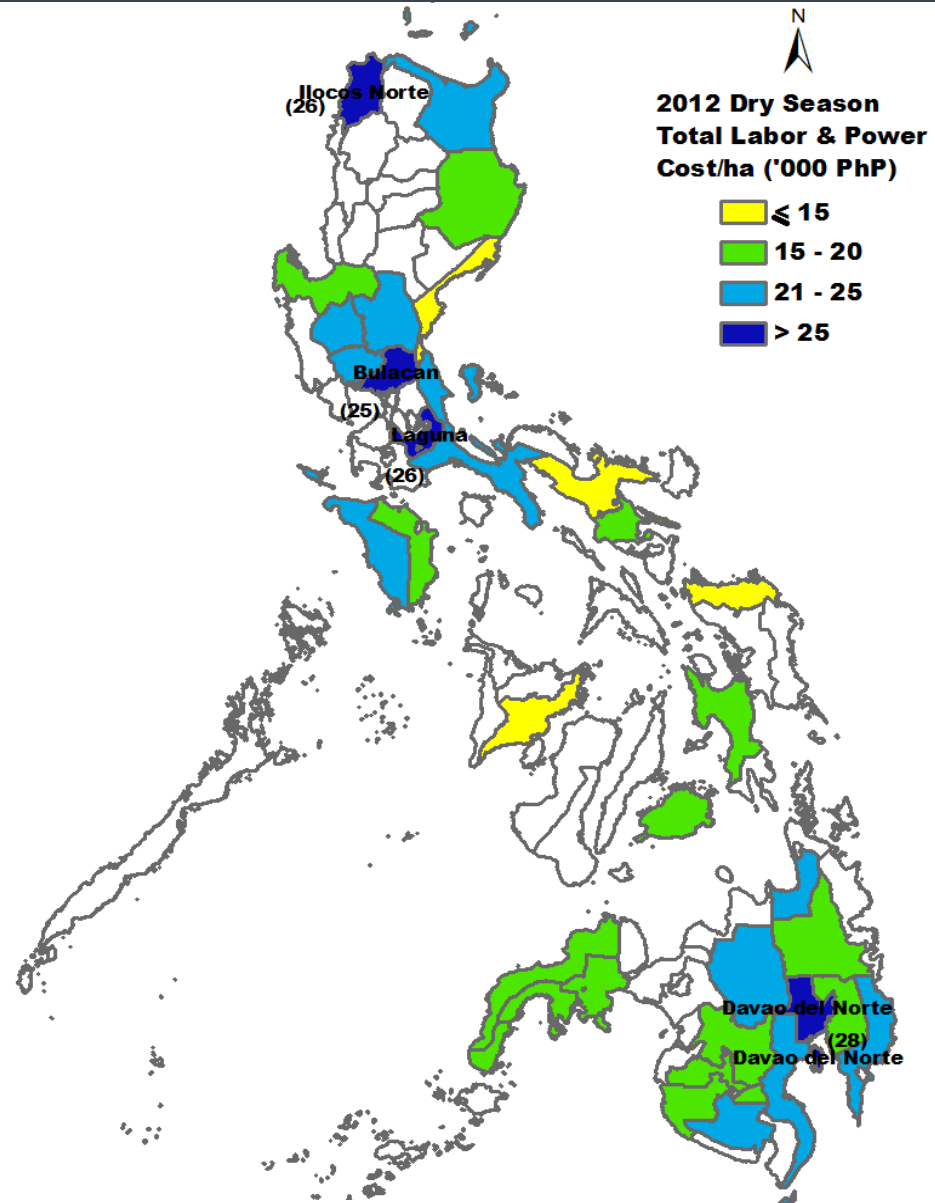
**How much
it costs**



Total labor and power cost/ha by season



Ave. Cost/ha: 17,000

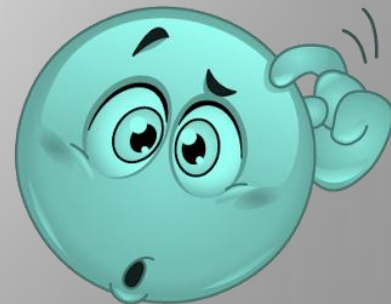


Ave Cost/ha = 20,000

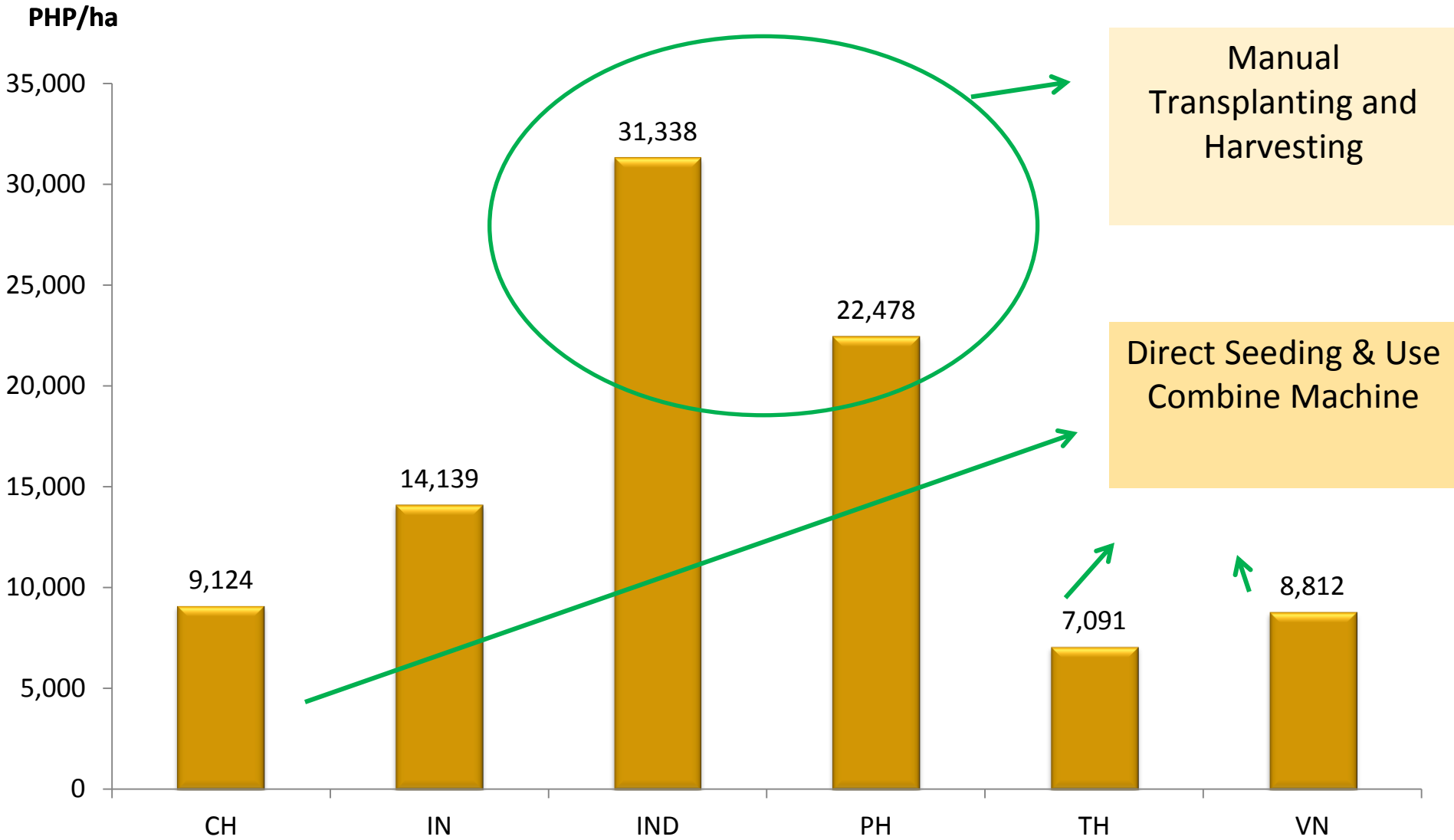
Ave. Cost/ha (PhP)

WS = PhP 17,000

DS = PhP 20,000



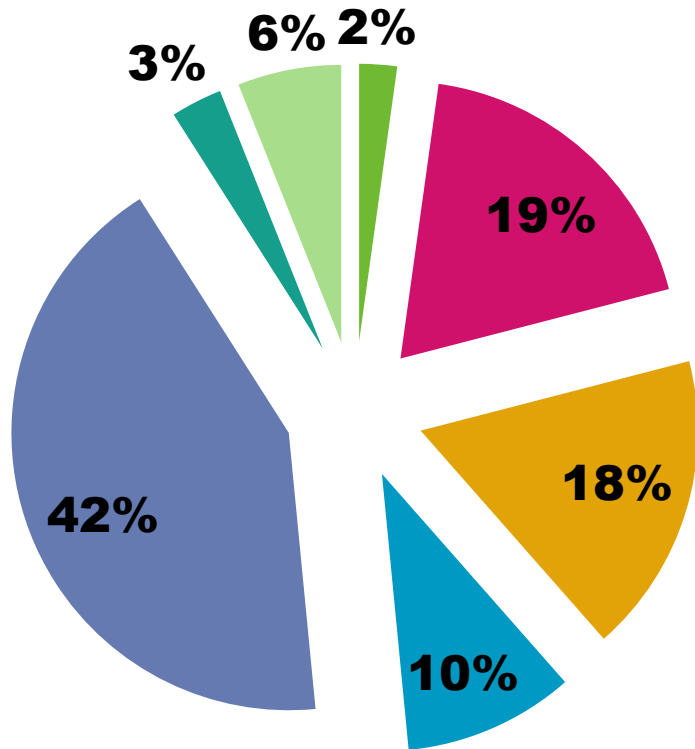
Comparison of labor & power cost/ha across countries



Source: Benchmarking, Jan-Jun 2013 survey

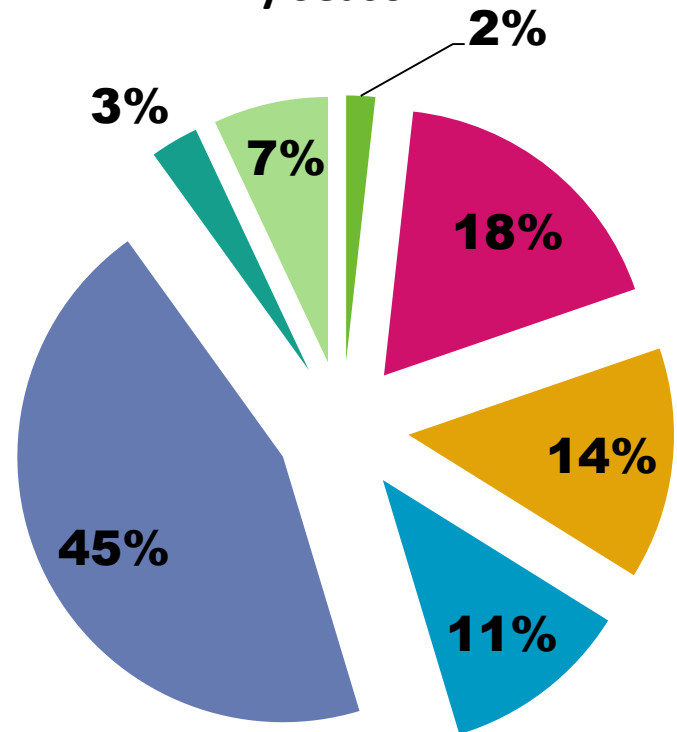
Labor & power cost distribution by type of major activity, 2011-2012

Wet Season



Ave. Labor & Power
Cost/ha = PhP 17,000

Dry Season



Ave. Labor & Power
Cost/ha = PhP 20,000

- Seed Estab.
- Land Prep.
- Crop Estab.
- Crop Care & Maint.
- Harv. & Thresh.
- Post Harv.
- Combined Labor (PL)

By Hand

or



Machine:



Labor use & costs/ha by type of method use

Method used	WS		DS	
	Person-days/ha	Labor & power cost/ha (PhP)	Person-days/ha	Labor & power cost/ha (PhP)
Crop Establishment				
Manual broadcasting	1.56	299	1.62	325.43
Drumseeder	0.75	100	1.42	219.17
Transplanting	21.46	3,366	20.71	3,853.77

❖ Labor requirement is significant high in manual transplanting.

Labor use & costs/ha by type of method use

Method used	WS		DS	
	Person-days/ha	Labor & power cost/ha (PhP)	Person-days/ha	Labor & power cost/ha (PhP)
Harvesting				
Manual	15.47	4,130	15.53	4,972
Mechanical Reaper	8.62*	3,366***	6.22*	3,841*
Threshing				
Manual	5.31	3,148	6.53	2,995
Thresher	4.15*	3,264	4.38*	3,943*

Note: * & *** - mean difference is significant at 1% and 10%, respectively

Labor use & costs/ha by type of method use

Method used	WS		DS	
	Person-days/ha	Labor & power cost/ha (Php)	Person-days/ha	Labor & power cost/ha (Php)
Harvesting & Threshing				
Manual harv. & manual thresh.	20.86	6,834	21.60	6,907
Manual harv. & mechanical thresher	19.51**	7,426***	19.97*	9,035 *
Mechanical reaper & mechanical thresher	12.13*	6,018	10.12*	8,449
Combine harvester	4.53*	6,779	2.38*	6,798

Note: *, ** & *** - mean difference is significant at 1%, 5% and 10%, respectively

Labor & power cost distribution by ecosystem, (PhP cost/ha)

Major Activity	2011 WS	
	Irrigated	Rainfed
Seed Establishment	395*	328*
Land Preparation	3,222	3,316
Crop Establishment	3,213*	2,424*
Crop Care & Maintenance	1,882*	1,173*
Harvesting & Threshing	7,709*	6,131*
Post Harvest	530*	472*
Combined activities (PL)	1,198*	529*
Total Labor & Power Cost/ha	18,149*	14,374*

Note: * & ** - mean difference is significant at 1% and 5%, respectively

Labor & power cost distribution by ecosystem, (Php cost/ha)

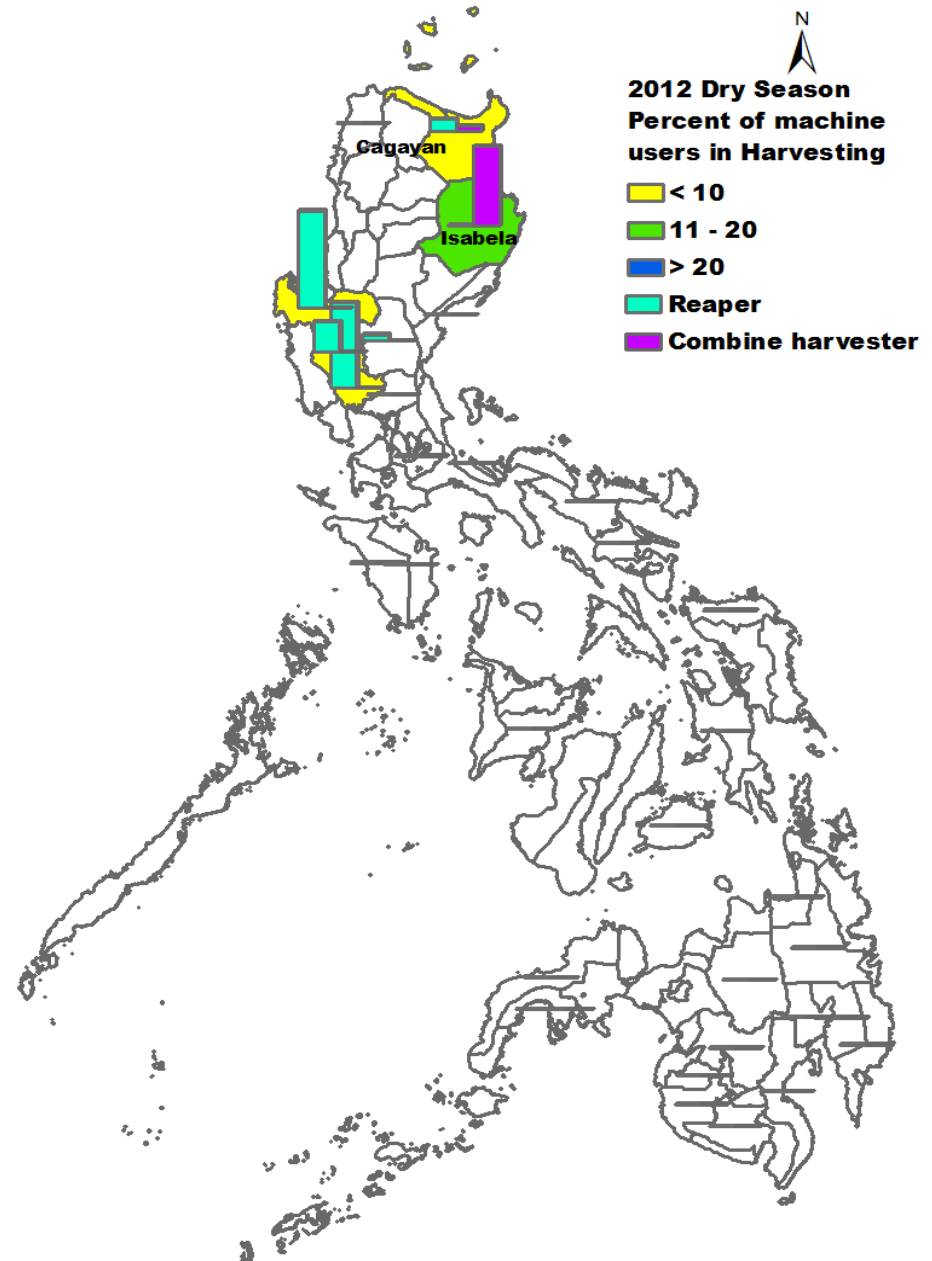
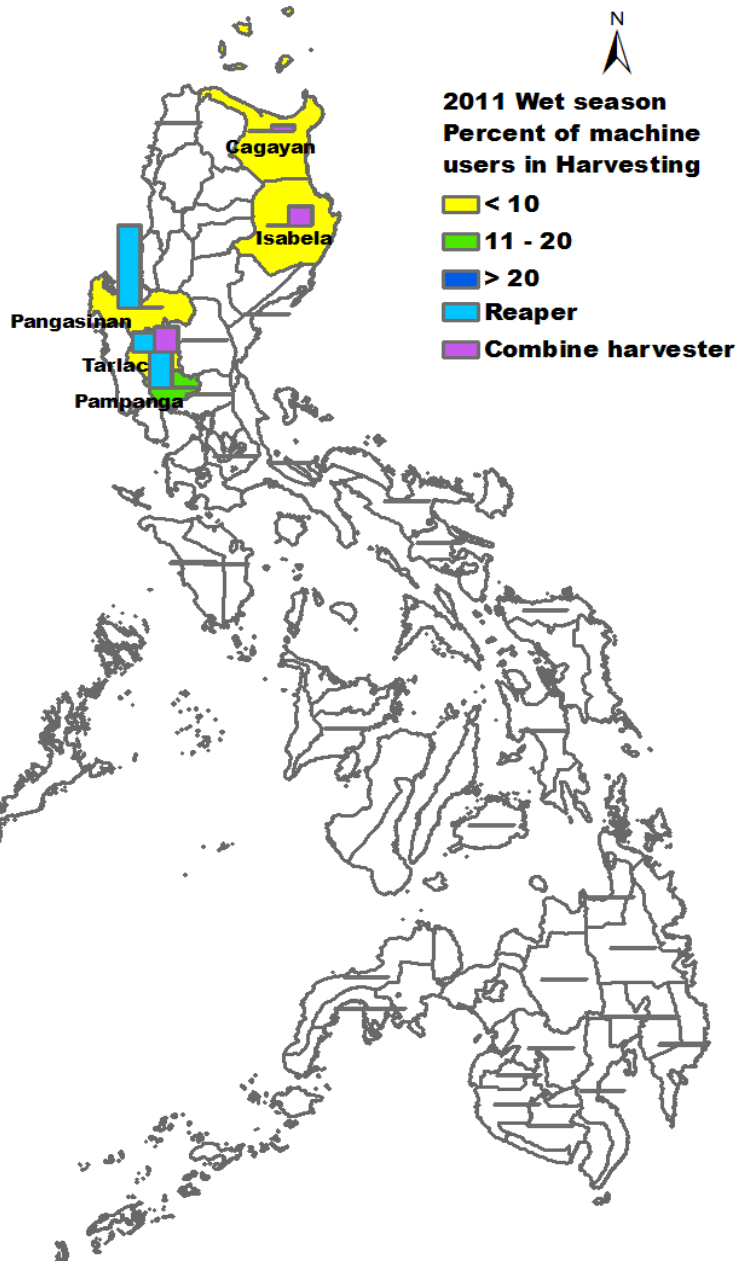
Major Activity	2012 DS	
	Irrigated	Rainfed
Seed Establishment	346	343*
Land Preparation	3,502*	3,621*
Crop Establishment	2,840*	2,506*
Crop Care & Maintenance	2,450*	1,435*
Harvesting & Threshing	9,376*	6,299*
Post Harvest	590**	522*
Combined activities (PL)	1,589*	479*
Total Labor & Power Cost/ha	20,693*	15,206*

Note: * & ** - mean difference is significant at 1% and 5%, respectively

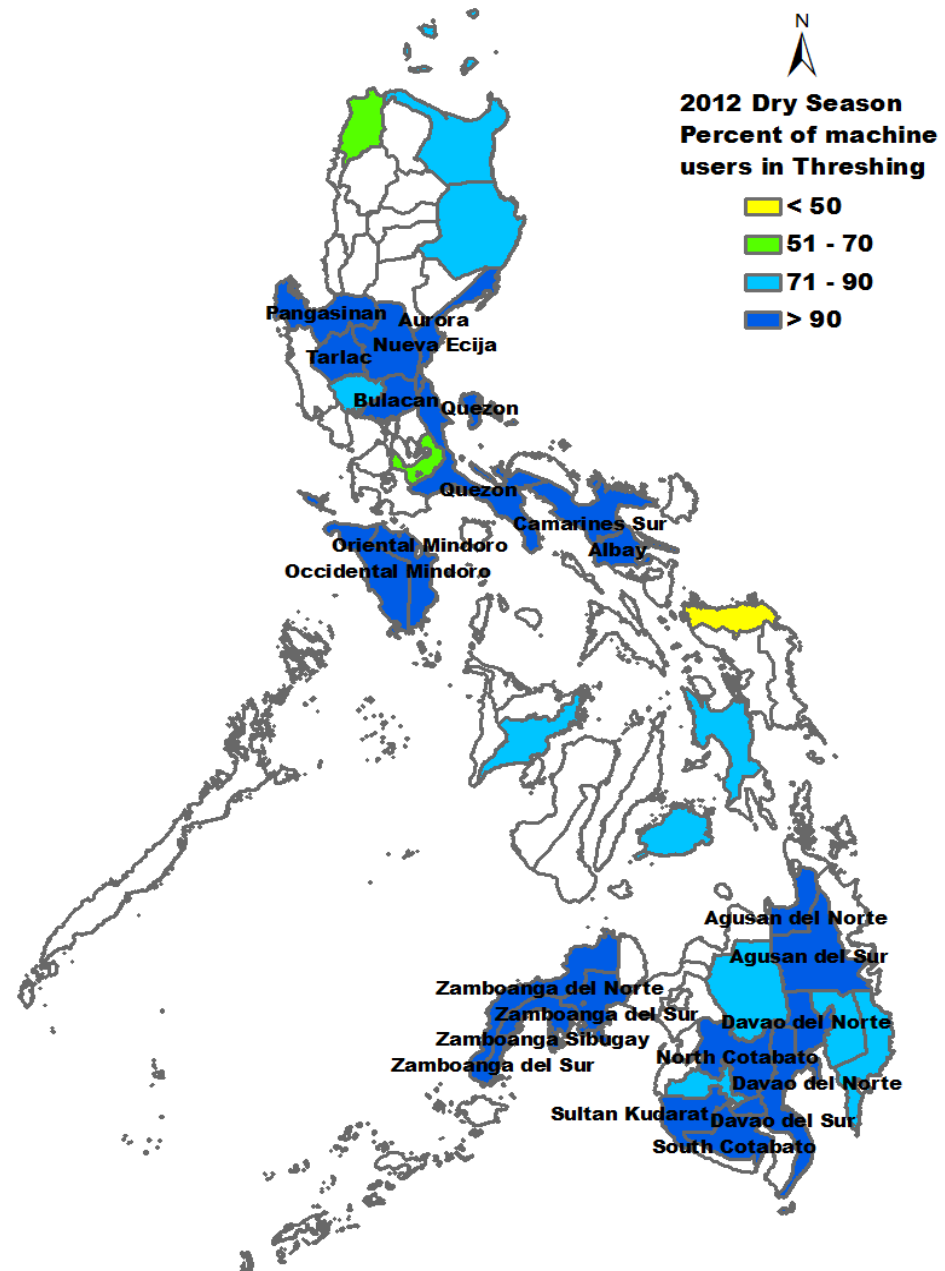
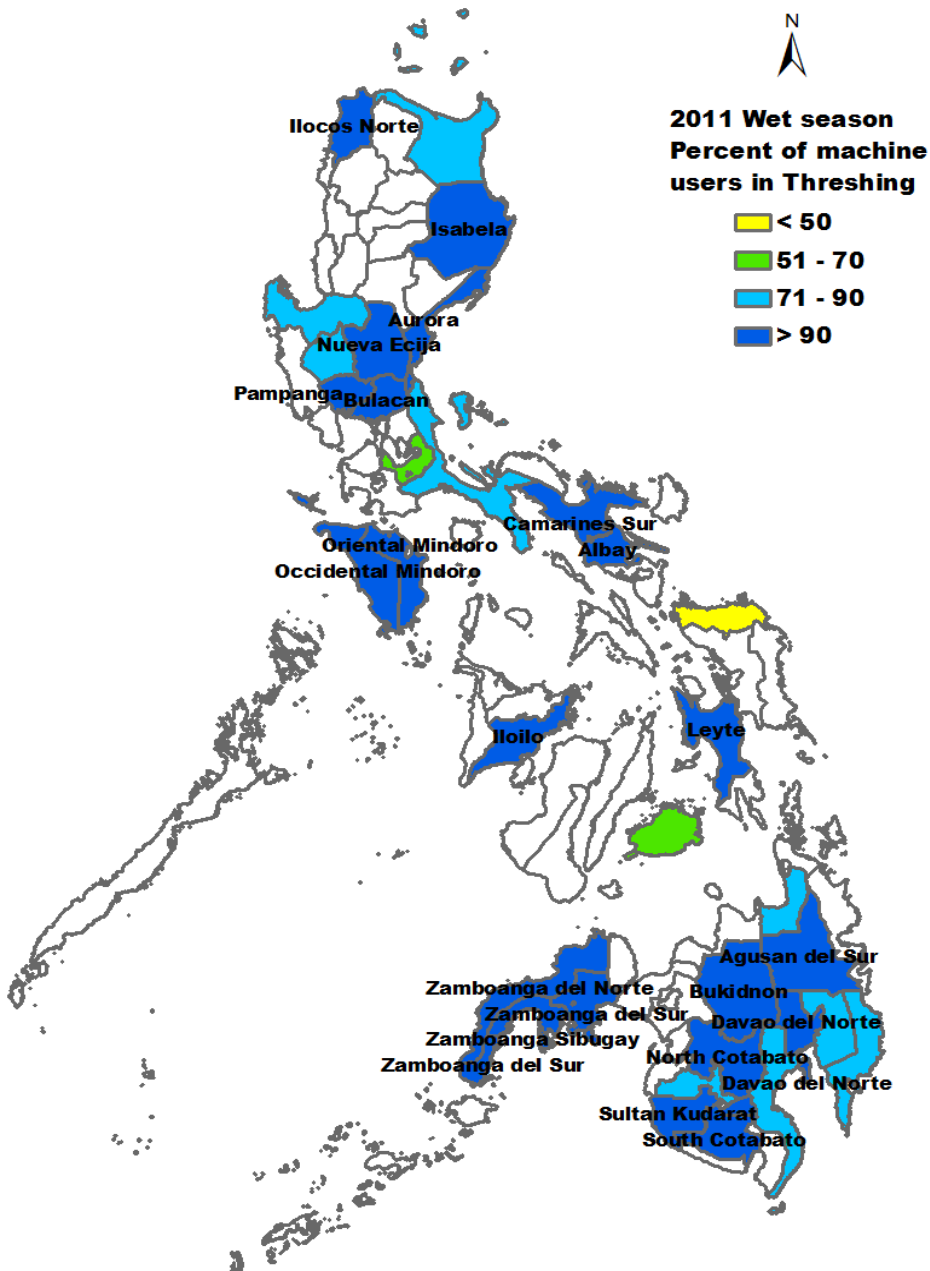
Labor & power cost distribution, all ecosystem, (PhP cost/ha)

Major Activity	2011 WS	2012 DS
Seed Establishment	380	345
Land Preparation	3,243	3,525
Crop Establishment	3,032	2,775
Crop Care & Maintenance	1,719	2,251
Harvesting & Threshing	7,346	8,775
Post Harvest	516	576
Combined activities (PL)	1,044	1,372
Total Labor & Power Cost/ha	17,281	19,620

% of machine users in harvesting



% of machine users in threshing





What's NEXT

By Hand

or



Machine:



Comparison of Labor & Power Cost/ha in Harvesting & Threshing

Activity	2012
	(PhP)
Man. Harv. & Mech. Thresh.	
Harv. & Thresh.	7,018.80
Sacks & Twine	697.15
Hauling of Palay	812.50
Food Cost	1,050.00
Total Cost	9,578.45
Combine	
Harv. & Thresh.	7,525.91
Sacks & Twine	718.87
Hauling of Palay	426.67
Food Cost	0
Total Cost	8,671.45
% Difference	9%
Amount Diff.	907.00

➤ In 2012, difference in total cost between 2 methods is only 9%.

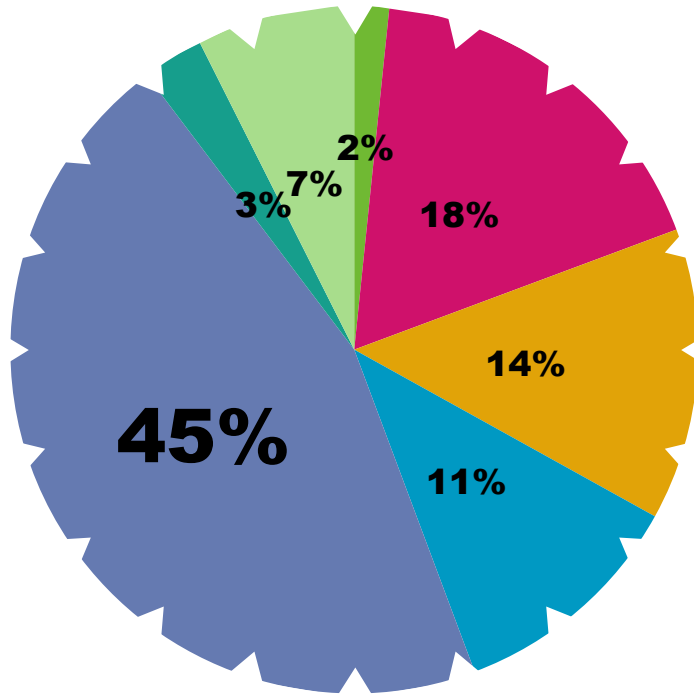
Comparison of Labor & Power Cost/ha in Harvesting & Threshing

Activity	2015	2015
	(PhP)	(PhP)
Man. Harv. & Mech. Thresh.		
Harv. & Thresh.	13,163.82	13,163.82
Sacks & Twine	1,194.95	1,194.95
Hauling of Palay	1,612.50	1,612.50
Food Cost	1,050.00	1,050.00
Total Cost	17,021.28	17,021.28
Combine		
Harv. & Thresh.	8,327.78	8,327.78
Sacks & Twine	0	0
Hauling of Palay	1,725.00	
Food Cost	0	0
Total Cost	10,052.78	8,327.78
% Difference	41%	51%
Amount Diff.	6,968.50	6,968.50

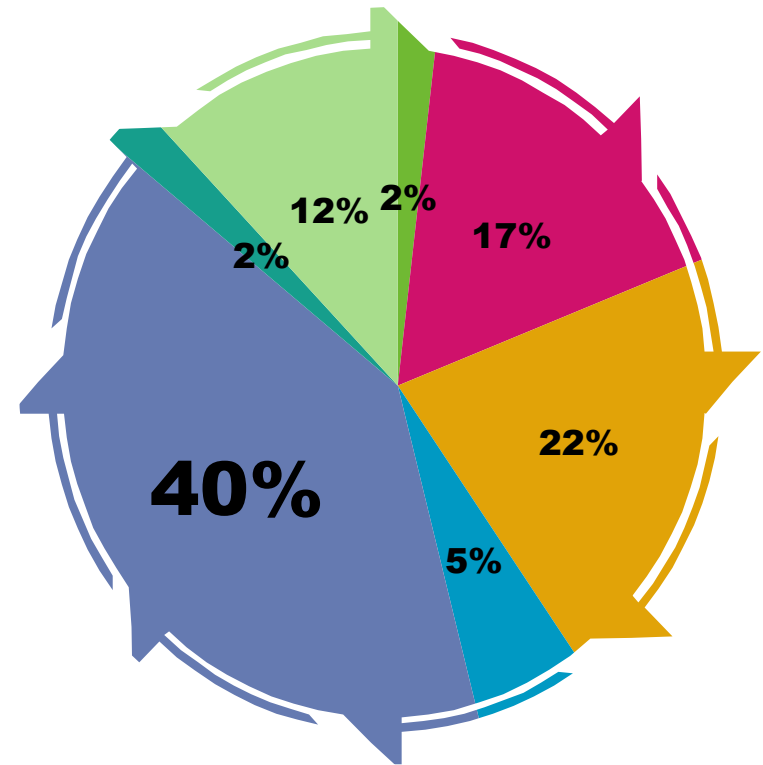
➤ Currently, total cost is significantly lower with the use of combine harvester.

Percent distribution of labor use by type of major activity, 2012 DS

Man. Harv. & Mech. Thresh



Combine



- Seed Estab.
- Crop Estab.
- Harv. & Thres.
- Combined Labor (PL)
- Land Prep.
- Crop Care & Maint.
- Post Harv.

Notes to ponder:

1. Labor use is significantly high in CE, CCM, and Harvesting & Threshing.
2. In CE: 100% manual transplanting under TPR, and 99% broadcasting under DSR.

-
3. In HT: Significantly high labor & power use and cost because 98% are manual harvesters.
 4. Low adoption of machinery especially for CE and HT labor component
 5. Additional research on effects of combine harvester usage on land preparation and crop establishment

Future Directions.....



- Labor cost should significantly be reduced to increase production efficiency.
- Promotion and proper dissemination of agricultural machineries such as drumseeders and combine harvesters.
- Also, there is a need to focus on other aspects such as social and environmental effects of such technological.
- Collaboration with other agencies to create alternative means of livelihood for farm laborers affected by technological innovation.

End of presentation.....