

# System of Rice Intensification (SRI) Experiences of Nepal

Presented by

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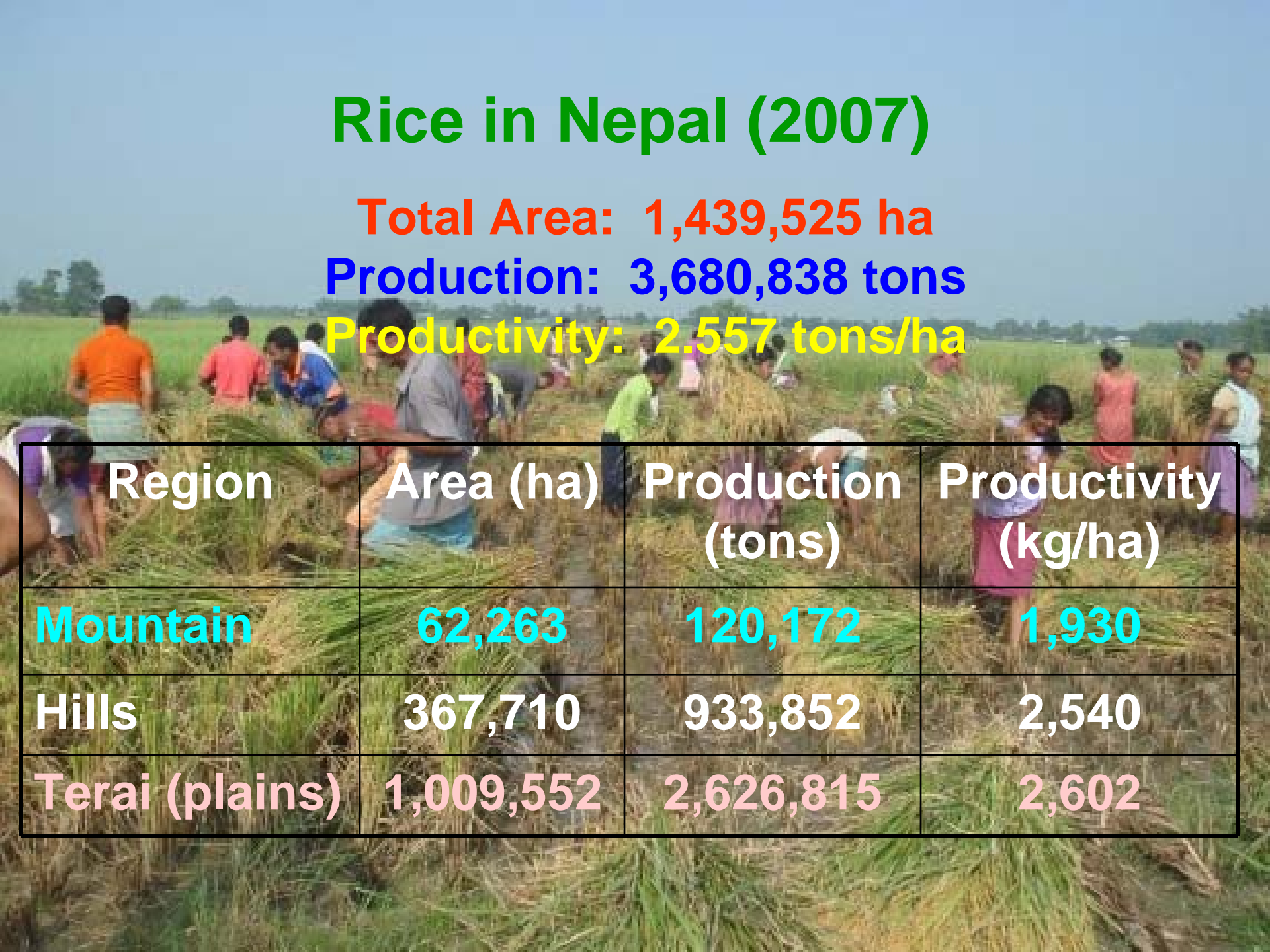
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# Rice in Nepal (2007)

**Total Area: 1,439,525 ha**

**Production: 3,680,838 tons**

**Productivity: 2.557 tons/ha**



Region	Area (ha)	Production (tons)	Productivity (kg/ha)
Mountain	62,263	120,172	1,930
Hills	367,710	933,852	2,540
Terai (plains)	1,009,552	2,626,815	2,602

# SRI in Nepal: Reports from 30 districts

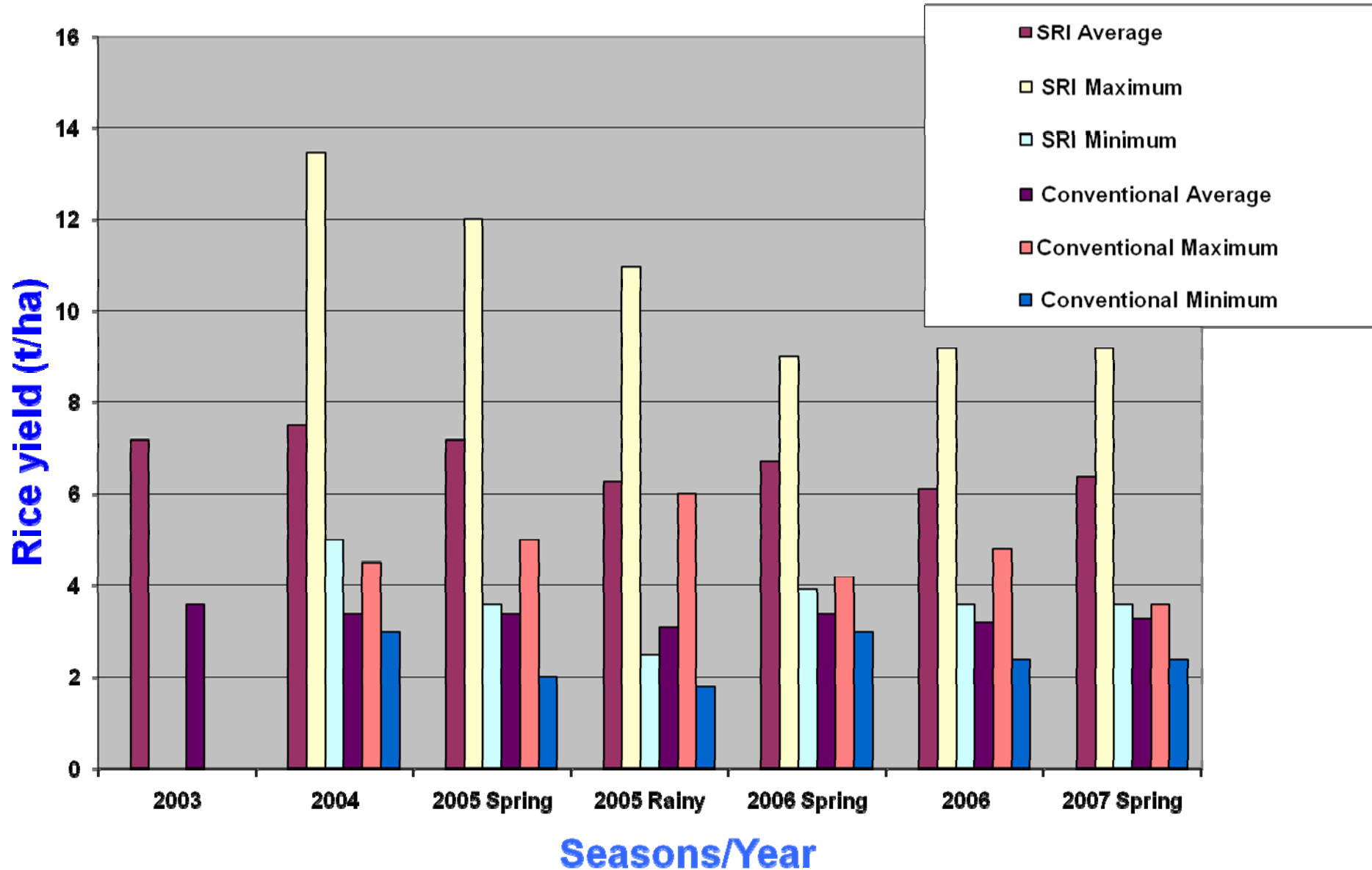
**Number of SRI farmers: about 6,000**

**Area under SRI: about 1,000 hectares**

**Organizations involved:**

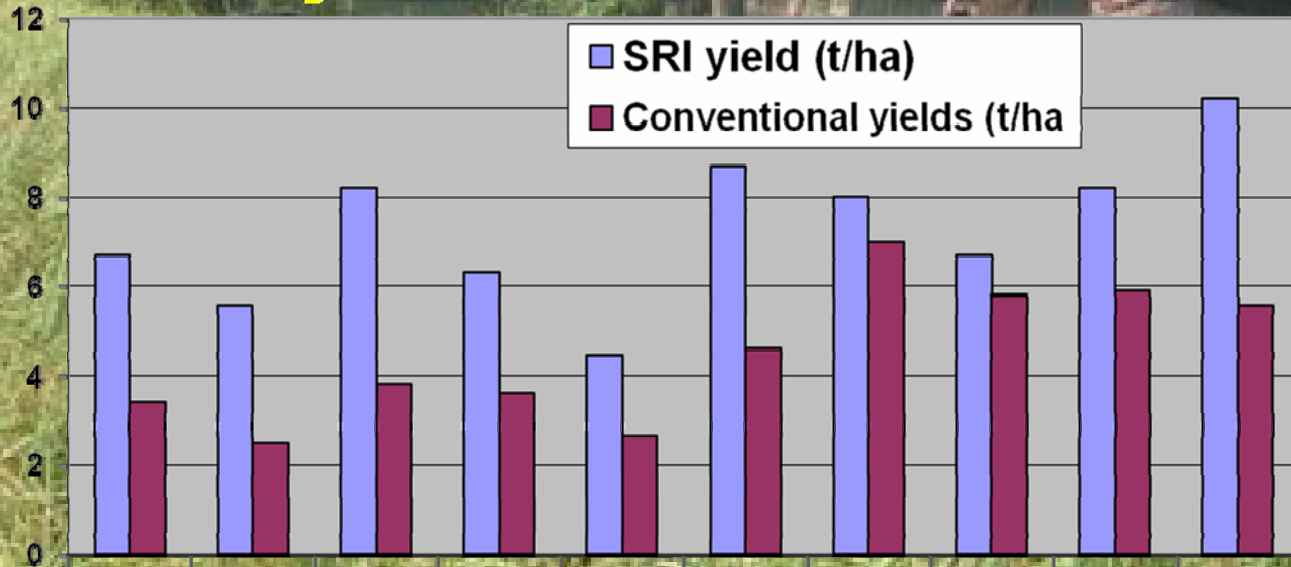
- **Government agencies: DADOs, Irrigation Dept. offices, Poverty Alleviation Fund, NARC, etc.**
- **Non-governmental organizations: ICIMOD, CSP/DFID, Care-Nepal, Li-BIRD, SAPROS, Surya Nepal, ATA, SAGOL, etc.**

# Comparative yields with SRI and conventional methods, Morang district, Nepal, 2003-2007



# Average SRI vs. conventional yields, by district, 2005/06

Rice yield (t/ha)



Districts/organizations



## Crop duration (from seed to seed) of different rice varieties using SRI methods compared with conventional methods (in days)

<b>Varieties</b>	<b>Conventional duration</b>	<b>SRI duration</b>	<b>Difference</b>
<b>Bansdhan/Kanchhi</b>	<b>145</b>	<b>127 (117-144)</b>	<b>18 (28-11)</b>
<b>Mansuli</b>	<b>155</b>	<b>136 (126-146)</b>	<b>19 (29-9)</b>
<b>Swarna</b>	<b>155</b>	<b>139 (126-150)</b>	<b>16 (29-5)</b>
<b>Sugandha</b>	<b>120</b>	<b>106 (98-112)</b>	<b>14 (22-8)</b>
<b>Radha 12</b>	<b>155</b>	<b>138 (125-144)</b>	<b>17 (30-11)</b>
<b>Barse 3017</b>	<b>135</b>	<b>118</b>	<b>17</b>
<b>Hardinath 1</b>	<b>120</b>	<b>107 (98-112)</b>	<b>13 (22-8)</b>
<b>Barse 2014</b>	<b>135</b>	<b>127 (116-125)</b>	<b>8 (19-10)</b>

# Highest yield produced by different varieties with combinations of different SRI practices, 2005/06

<b>Varieties</b>	<b>Reduction in duration (days)</b>	<b>Highest yield (t/ha)</b>	<b>Age of seedling (days)</b>	<b>Spacing (cm)</b>	<b>Days for first weeding after transplanting</b>
<b>Bansdhan</b>	<b>23</b>	<b>11.0</b>	<b>11</b>	<b>25x25</b>	<b>15</b>
<b>Mansuli</b>	<b>15</b>	<b>9.9</b>	<b>9</b>	<b>30x30</b>	<b>19</b>
<b>Swarna</b>	<b>19</b>	<b>9.0</b>	<b>11</b>	<b>25x25</b>	<b>28</b>
<b>Sugandha</b>	<b>8</b>	<b>7.0</b>	<b>9</b>	<b>20x20</b>	<b>11</b>
<b>Radha 12</b>	<b>25</b>	<b>9.6</b>	<b>11</b>	<b>25x25</b>	<b>16</b>
<b>Hardinath 1</b>	<b>11</b>	<b>8.4</b>	<b>11</b>	<b>20x20</b>	<b>8</b>


# Average cost, returns, and net profit, by different cultivation methods, 2006/07

<b>Production system (Methods used/ water supply)</b>	<b>Yield (kg/ ha )</b>	<b>Total costs (Rs/ha)</b>	<b>Returns from grain (Rs/ha)</b>	<b>Returns of by- product (Rs/ha)</b>	<b>Gross income (Rs/ha)</b>	<b>Net profit (Rs/ha)</b>	<b>Costs of produc- tion (Rs/kg)</b>	<b>Output/ input ratio</b>
<b>Improved/ irrigated (terai)</b>	<b>3,870</b>	<b>22,119</b>	<b>34,857</b>	<b>7,055</b>	<b>41,912</b>	<b>19,793</b>	<b>3.89</b>	<b>1.9</b>
<b>Improved/ unirrigated (terai)</b>	<b>3,467</b>	<b>21,590</b>	<b>28,781</b>	<b>8,946</b>	<b>37,727</b>	<b>16,137</b>	<b>3.65</b>	<b>1.7</b>
<b>SRI/terai</b>	<b>9,839</b>	<b>17,095</b>	<b>99,105</b>	<b>5,162</b>	<b>104,267</b>	<b>87,172</b>	<b>1.21</b>	<b>6.1</b>
<b>SRI/hills</b>	<b>11,127</b>	<b>27,599</b>	<b>114,051</b>	<b>7,531</b>	<b>121,582</b>	<b>93,983</b>	<b>1.80</b>	<b>4.4</b>
<b>SRI /manual weeding (Morang)</b>	<b>6,400</b>	<b>23,205</b>	<b>64,465</b>	<b>6,500</b>	<b>70,965</b>	<b>47,760</b>	<b>2.61</b>	<b>3.1</b>
<b>SRI / mechanical weeding (Morang)</b>	<b>7,800</b>	<b>21,175</b>	<b>79,949</b>	<b>6,550</b>	<b>86,499</b>	<b>65,324</b>	<b>1.87</b>	<b>4.1</b>





**Factors influencing adoption in different types of rice farming systems in Nepal**



# Ave. rice areas of individual SRI farmers under SRI and non-SRI methods in Morang and Dhankuta districts, Nepal (2008)

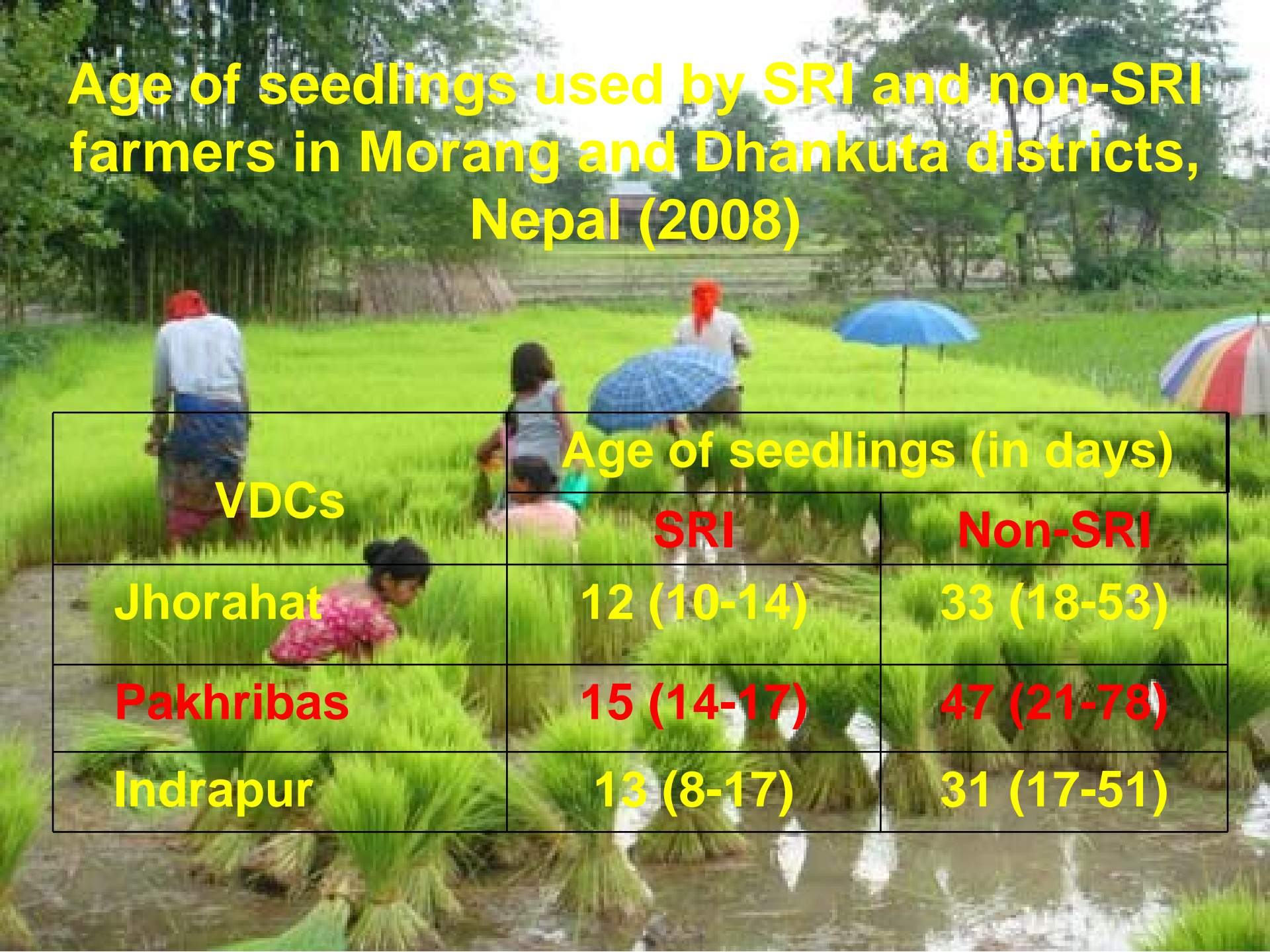
VDC (district)	Total rice area (Katha)**	SRI area (Katha)	Non-SRI area (Katha)
Jhorahat (Morang)	31 (4-64)	5 (3-11)	26 (0-60)
Pakhribas (Dhankuta)	23 (20-25)	3 (2-5)	21 (2-22)
Indrapur (Morang)	33 (3-70)	11 (2-30)	24 (0-62)

\*\* Katha= 333 square meters

# Average land ownership status of SRI farmers and SRI areas in Morang and Dhankuta districts, Nepal (2008)

VDC	Total rice area (Katha)	Own land (Katha)	Rented land (Katha)	SRI areas (Katha)	SRI as % of own land
Jhorahat	31	9 (4-20)	40 (20-60)	5 (3-11)	56
Pakhribas	23	19 (11-25)	12	3 (2-5)	16
Indrapur	33	16 (1-50)	27 (10-50)	11 (2-30)	69

# Age of seedlings used by SRI and non-SRI farmers in Morang and Dhankuta districts, Nepal (2008)



VDCs	Age of seedlings (in days)	
	SRI	Non-SRI
Jhorahat	12 (10-14)	33 (18-53)
Pakhribas	15 (14-17)	47 (21-78)
Indrapur	13 (8-17)	31 (17-51)

# Technical constraints for SRI in Nepal

- Land ownership
- Availability of irrigation facilities
- Distance of rice land from the residence
- Availability of seasonal farm labor (family/hire)
- Weeder availability/weed management system
- Family income sources (farm vs. non-farm)
- Time/season of rice transplanting (early/late)
- Investment in rice farming

# Socio-political constraints for SRI

- Initial failure of SRI trials at NARC station in 1999
- Resistance of NARC to be involved in SRI evaluation
- Decade-long political struggle and political instability
- Threats to government officials from rebels against government activities in rural areas
- Government's concentration on and priority to political matters and peace process more than development activities
- Difficulties for movement due to strikes and uncertainties for safe travel within the country
- Weak support system for knowledge, tools, and equipment



# Conclusions

- 1. We now know that SRI can perform better than conventional methods in many ways. Main factors making SRI important for a country like Nepal are: earlier maturity (17 days), less seed requirement (by 90%), less water requirement, less production cost, all with more yield (>60%)**
- 2. Still, there are also various problems that impede the wider dissemination of SRI in Nepal: unreliable irrigation facilities, shortages of labour, unavailability of mechanical weeders, distances of rice fields from the residence, and farmers' work calendar and other demands**

## Conclusions (continued)

- 3. Country's political situation in the past and negligible government support have also slowed SRI movement in Nepal**
- 4. Stakeholders' concentration and coordination of efforts on more reliable irrigated areas, with supply of mechanical weeders and technical support for SRI movement, will speed spread**
- 5. SRI is also influencing conventional rice farming in those areas where SRI will be less feasible; this is assisting the increase in rice productivity**

# SRI activities in Nepal

2005 6 26





**More tillers from single seedling**

2005 6 26



**Big and healthy root system**



**More panicles per hill**





## Farmer-made markers and weeders facilitate SRI







# SRI Training



**Himal Khabarpatrika**



**Nepali TIMES**



**National and international journalists visit SRI fields in Morang**



**Channel Nepal**

2009 8 6



**BBC World Service**

2009 8 7



**Mekie Netherlands**



**Prof. Prachanda Pradhan, Nepal**



**National and international scientists visit SRI fields in Morang**



**Prof. John Duxbury and Dr. Julie Lauren, Cornell**



**Prof. Norman Uphoff**



Thank You

2005 6 4