CSCIP_Nepal - accelerating variety seed purity and maintenance

Improving seed variety purity

The problem

- Traditional supply of genetically pure seed from a centralised entity can only supply a small number of farmers.

- High cost of shifting seed across large distances, and to isolated villages with limited transport options.

Upgrading seed variety purification

The Solution

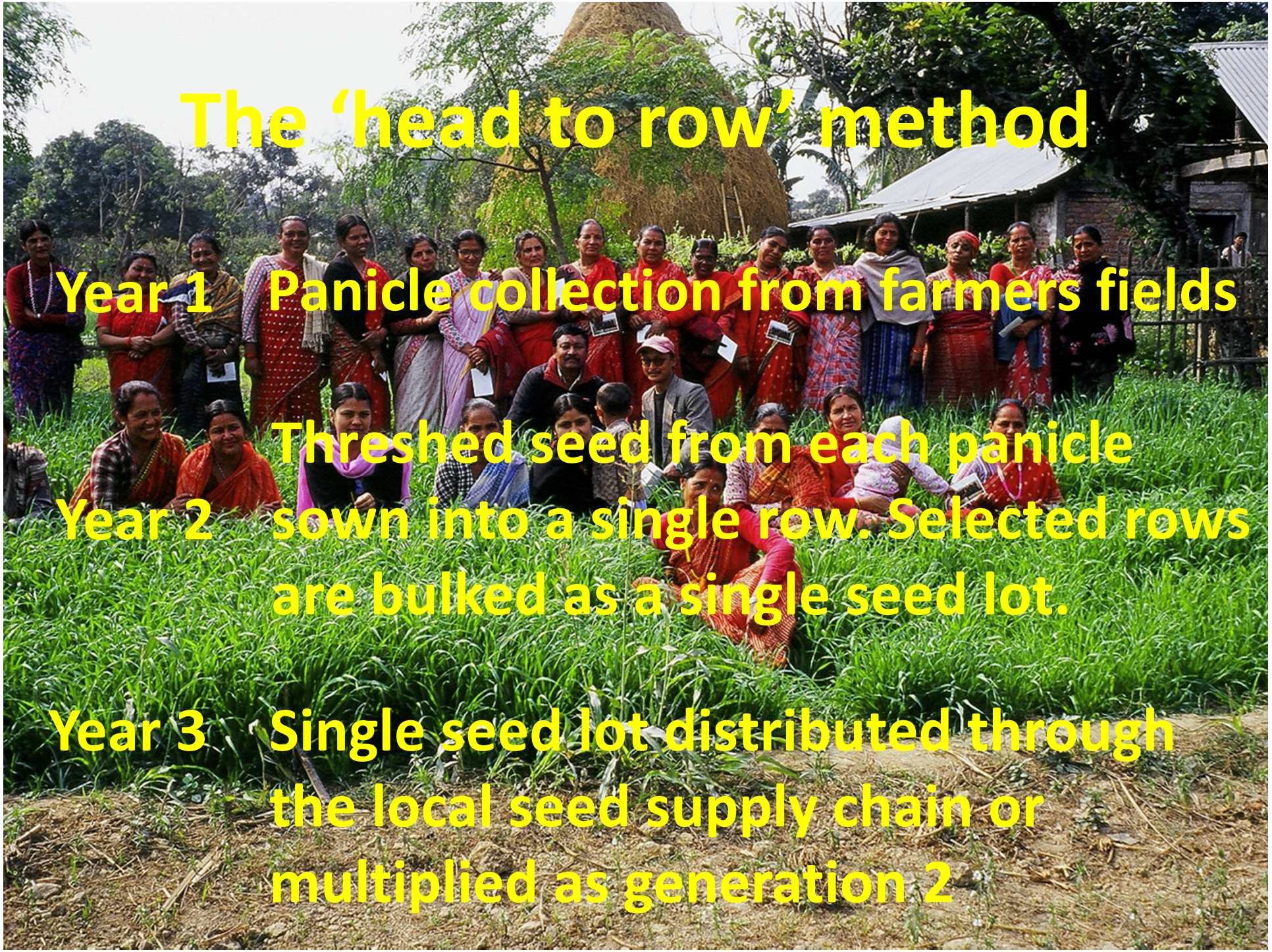
- decentralising variety maintenance activities to cooperatives as a business activity

- by demonstrating, training and supporting cooperatives to fulfil more of the seed multiplication, and variety seed maintenance roles

- enabling recently bred variety seeds to reach farmers much more quickly

Expected community seed variety maintenance and purity outcomes

- closer association between cooperatives and and traditional seed providers - regional seed research farms, agrovets and NGO's
- greater quantities of high quality seed distributed locally in a timelier manner, at reduced cost.


The ‘head to row’ method
Year 1 Panicle collection from farmers fields
Threshed seed from each panicle
Year 2 sown into a single row. Selected rows
are bulked as a single seed lot.
Year 3 Single seed lot distributed through
the local seed supply chain or
multiplied as generation 2

Year 1 - Detailed activities

- **100 panicles harvested from each identified field**
- Label and store panicles loosely to air dry
- Store loosely in bag (from ceiling) in airy dry room
- Protect from insects and rodents
- Thresh each panicle separately - discard poor seed samples
- Seed from each threshed seed head placed in an identified/numbered seed packet

Year 2 – Detailed activities

- **Sow each seed packet as a single head row**
- Monitor nursery - select, and record identity of uniform progeny rows
- Ensure plots for harvesting are identified
- Harvest selected rows and bulk as a single seed lot
- Make sure seed lot container is clean and clearly labelled
- Always label the container not detachable lid
- Elite and new genetically diverse materials (off-types) identified, separated from above

Year 3 – Detailed activities

- **Single seed lot distributed to farmers through the local seed supply chain or** multiplied as generation 2

- Set aside a proportion of the seed lot for future multiplication

- Determine frequency of seed maintenance /multiplication for each variety

*Length 1.5m

Calculator - 2016

! Sow rate 10g/m2

Year1			
#PanicleRows*	100	250	500
SeedLot/kg	4	10	20
Year2			
AreaSown/m2!	400m2	1000m2	2000m2
SeedReturn/kg	80	200	400
Year3			
Farmers Crops	0.55ha	1.4ha	2.75ha

*Length 1.5m

! Sow rate 10g/m2

Calculator Sensitivity table)

Year1	**cycle1**	**cycle2**	**cycle3**
#Panicle rows* sown	100	100	100
#uniform rows harvested	60	75	90
Uniform row seed yield/g	66g	80g	100g
SeedLot/kg	4	6	9
Year2			
AreaSown/m2**!**	400m2	600m2	900m2
Seed yield/m2	200g	300g	400g
SeedLot/kg	80	180	360
Seed Multiplication factor	20x	30x	40x
Year3			
Farmers Crops	0.80ha	1.80ha	3.60ha

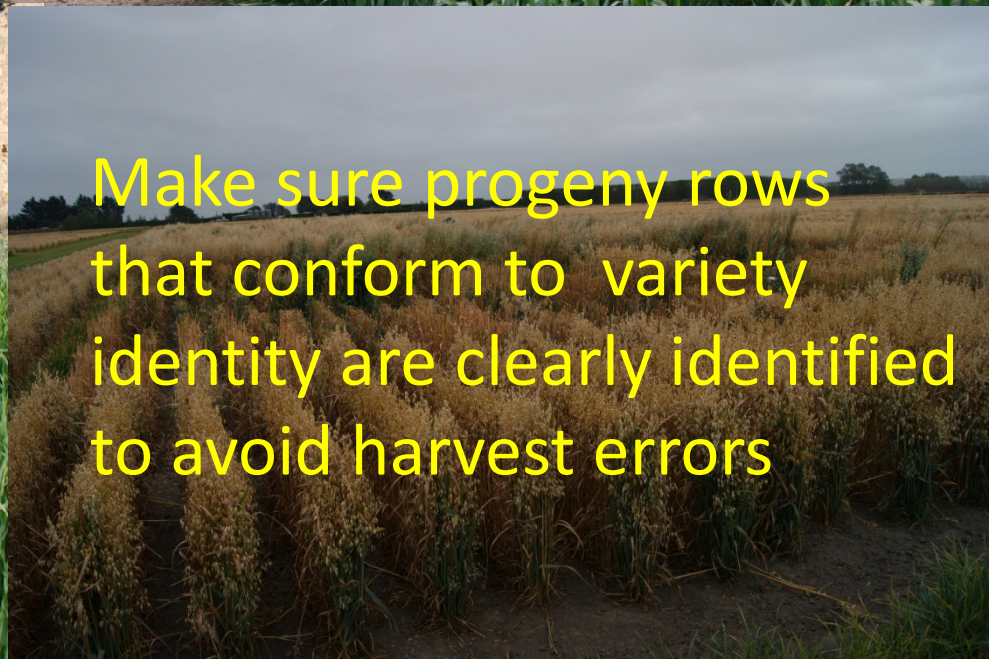
Assumptions used for calculator sensitivity table

- After first cycle (**cycle1**) of seed purification and multiplication yields will significantly improve as experience grows
- Panicles should be harvested from the first seed lot multiplication block for subsequent seed maintenance/ purification
- **Year 3** activity may be a further seed lot (generation 2) multiplication before distribution to farmers


Single panicle rows


Progeny rows that don’t conform to variety identity are discarded


A uniform seed multiplication plot


Make sure progeny rows that conform to variety identity are clearly identified to avoid harvest errors