

Donors' report; May 2018

By Dr Leigh Vial, Project Leader.

This project officially ended in December 2017, after our seeder owners had their seeders for one full wet season. That wet season was very wet; little drill-seeding got done. We could not bear to finish it there, so we used the last fumes of funding to revisit the seeders a final time before wet season 2018.

Upon return, I can report a pleasing situation. Not perfect, but pleasing. Seven of the seeders each have quite a number of farmers wishing to use it, by whatever business model the owners choose. Two have been relocated from the original villages, where they have not gained the following predicted, to a nearby village that asked for access to it. The new owners will pay the old owners. A final owner is considering relocating their seeder.

Recapping our original intent, we wanted to bring in seeders more capable than the existing ones, to expose the system to them. These are the first seeders in lowland Lao PDR that can:

1. Seed multiple crops
2. Seed a range of soil types
3. Seed very moist soil
4. Meter and place fertilizer with the seed
5. Change the seed and fertilizer rate
6. Seed no-till if desired

Systems change in mechanized agricultural systems is usually a simultaneous process of evolving techniques (*pap pung vee tee*) and evolving equipment (*pap pung keuang*). This aims to evolve seeding equipment another increment, allowing techniques to progress with it.

Capabilities 2, 3, 4 and 5 have been used to date. Capabilities 1 and 6 should be used this wet season. The full effects will only be known over a number of seasons.

Rather than detail everything we did and saw in the April 2018 visit, I offer the following highlights:

- We supported a drill-seeding training day at Saisaad Village, Outumphone District. It was requested and conducted by the District Agriculture Office; myself and Provincial Agriculture Office staff lent technical support. We explained why placement of phosphorus fertilizer with the seed seems so important; phosphorus is quite immobile in the soil (I call it *pui kii kaan*, 'lazy fertilizer', a term that tickles their fancy), so you need to put it close to developing roots for best effect in their impoverished soil. After decades of spreading expensive phosphorus on the surface, the penny dropped for this group.

Photo 1: Phetsamone Simali leading the discussion about seeding techniques during the training day at Saisaad Village.

- Mr Silea, of Alan Wattana Village, intends to seed his rice no-till (*yort bo tai bo kaat*) this season. I knew he liked the technique, and had done it before with prototype machines; this visit we found out why. His soil is rock-hard when dry, and very sticky when wet. Preparing it in the standard way is a very tricky task. Hence, he prefers to seed it without prior ploughing or leveling. As a cropping farmer on less-favourable soils, this is exactly our own experience: the less we touch the soil, the better!!

Photo 2: Mr Silea and Mr Lokham discussing how to change the tyne position for no-till seeding.

- The first non-rice crop (maize) will be seeded near Nakalan Village in Phin District. It will be seeded in an upland area, after that farmer had heard of the seeder.
- Mr Bounsu, of Tuat Village, will seed 1-2 ha for himself, and may seed for others. He will insist on good land preparation or he won't seed, though, as he does not want to be blamed for a weed-infested crop! He also intends to put a demonstration crop in his field adjacent to the road/irrigation canal, comparing placing fertilizer with the seed (*sai poui pom*) versus the old fashioned broadcasting method. It was on Mr Bounsu's farm, about 5 years ago, that we observed an 80% yield increase from changing just the fertilizer placement method (keeping the rate the same) to put the fertilizer in the soil adjacent to the seed.
- Two of the owners expressed interest in inter-row cultivation (*kham jat nyaa*); ploughing between the rows after the crop is established. Mr Bounsu in particular wants to try this method, so we left him with (very standard) Australian cultivation points from which to make a prototype inter-row cultivator, and 300,000 kip to help the process. Knowing him, he will most likely achieve it! [Here is the video clip of Mr Bounsu discussing it with Phetsamone.](#) Lao farmers and the Lao government do want to avoid the use of herbicides as they switch away from the old techniques. It will be a tough ask, but having a variety of non-herbicide methods is the first pre-requisite. It is ironic that some Australian farmers are turning to inter-row cultivation (aided by super-accurate guidance systems) to help address severe herbicide resistance after years of relying on herbicides.
- About half of the owners did not express concern with the weight of the machine. With the extra capability comes extra weight. In the absence of greater use of plastics or aluminium, that seems unavoidable. This weight still troubles some, but about many of them appreciate it as the worthy price of more capability, or are attaching counter-weights to the front of their tractors to ease the weight at the rear, or both.

- We now have a small group of Provincial Agriculture Office staff trained and skilled in drill-seeding in Savannakhet. We can not claim sole credit for this, as other projects have built their skills also, but human capital is a huge issue in agricultural extension systems throughout the developing world. Exposure to better quality seeders, and consideration of techniques possible with them, has increased their capabilities and confidence. It has been a delight to see their confidence grow.

Thank you once again for your support of this initiative. There is no doubt we have aided the innovation process in rural Savannakhet, Lao PDR. The full effects will be known over time, and who knows exactly what it will look like then, but your initiative will help a great deal.

A final treat for you. I participated in a rocket festival (*buun bang fai*) whilst in Savannakhet. Part fertility-festival, and part to make it rain, folk come to pray, drink, dance, and set off home-made rockets all afternoon. [Here is a clip of a 24 kg home-made rocket heading skywards.](#) Impressive, although modern safety standards were lacking!