ACTAE project
CANSEA R&D grant

CANSEA a R&D Network on Agroecology Transition in South East Asia

Service provision of no-till planters to farmers: opportunities and challenges in Tonle Sap Lake Region

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Key results and lessons learned from the activity

No-tillage sowing practice holds high promises for farmers, but its sustainable implementation requires that there is a market for no-till services with planters available in local markets, that service providers have access to affordable no-till planters to offer services to smallholder farmers. Service providers (tractor owners) in the Tonle Sap Lake region currently offer a wide range of services, such as ploughing, building ridges for cassava, cultivation, sowing for maize and mungbean, use of rotavator for rice field preparation, and transportation.In addition, they all tend to their own farms as well. Their business models are highly diverse, and in particular, the area where they provide services every year ranges from 50 ha to almost 1,000 ha per tractor (284 ha on average). There has been a boom in the number of tractors purchased in Battambang and Kampong Thom Provinces over the past 10 years. This has led to high competition with many service providers not being able to fully use their machines and several of them have already started facing problems paying back the loans taken to purchase machinery.

Service providers providing conventional ploughing services make usually 2 ploughs per field, whereas a no-till planter requires only one operation for the sowing. With more passes, the service providers make more money with conventional tilling. Moreover, a no-till planter is more expensive than a conventional planter. Investing in a no-till planter is not profitable for the service providers that currently intervene on large areas. However, the provision of no-till planter services can lead to higher incomes for the service providers that currently under-use their tractors by just providing conventional tilling services. Most of the service providers that were interviewed felt that way. For service providers engaging in this activity, the use of a no-till planter could become a complementary activity during part of the year, sowing crops such as rice, maize, mungbean, among others annual crops. During the rest of the year, the service providers would go on providing services that they have been carrying out.

Twenty-five out of the thirty-one interviewed service providers were interested in investing in a no-till planter, not only to offer the service, but also for their own fields. They asked for more information on the machine, and in particular to see it working. However, 15 mentioned that they did not have sufficient funds to purchase a no-till planter.

The Tonle Sap Lake Region has a high opportunity for the adoption of no-till planters and the development of a service provision market for no-till sowing. Support is needed to catalyze the growth of this demand and this market. In particular, there is a need to support service providers through a demand-creation process and to have increase access to affordable no-till planters. In addition, provision of financial support to service providers may be needed to support the transition from plough-based to no-till activities.

Ploughing in Samlout district, Battambang, credit Rada Kong

Seed producer sowing sunnhemp (*Crotalaria juncea*) for seed production after maize harvest. Uplands of Rattanak Mondoul district, Battambang province, September 2018, credit Suos Vuthy

Context of the Action

There has been a boom of cultivated areas in the peripheral regions of the Tonle Sap Lake over the past decades. Cultivated areas in upland zones of Pailin and Battambang Provinces have increased from 40,000 ha in 2001 to 250,000 ha in 2015. Agricultural practices, in both lowlands and uplands, are based on ploughing and others field operations that drive down the soil fertility.

In this context, no-till planters have many advantages compared to conventional ploughing: low soil disturbance, a reduction of production costs and an increase in yields. Since 2009, no-till planters have been used on pilot areas in Battambang and Kampong Thom. In 2018, no-till planters were used on 410 ha of upland and lowland areas in Battambang Province. There is a high potential demand for such planters, but there needs to be sufficient capacities to match this demand, in order to scale up conservation agriculture practices in Tonle Sap Lake Region. It was important to find out if the service providers could be the scale agents of change.

Objectives of the Action

The objectives of the action were:

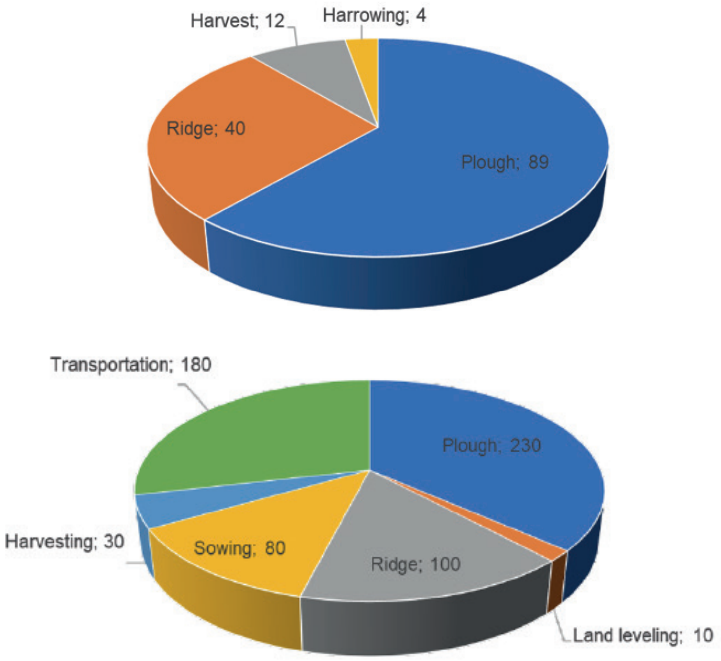
- To assess the practices of service providers in Battambang and Kampong Thom provinces and to make an economic assessment;
- To assess under which scenario the integration of no-till planters in the activities of these services providers would be profitable for them;
- To collect service providers' opinion regarding potential purchase of no-till planters; and,
- To identify service providers that may be interested in investing in no-till planters.

Partnership

Interviews and analysis were conducted by Nanntha Oung from the NGO "Agronomist and Vets Without Borders" (AVSF) and Pierre Vernet, MSc student, in the frame of a joint initiative involving AVSF, the Conservation Agriculture Service Centre (CASC) of the Department of Agricultural Land Resources Management (DALRM/GDA, MAFF), the Department of Agricultural Engineering (DAEng/GDA, MAFF), CIRAD, Ecoland research centre from the Royal University of Agriculture (RUA) and Swisscontact. Support was provided by the project Towards Agroecological Transition in South-East Asia (ACTEA/CANSEA) and by The Feed the Future Innovation Lab for Collaborative Research on Sustainable Intensification (USAID): Appropriate-Scale Mechanization Consortium, Faculty of Agricultural Engineering of RUA, University of Illinois Urbana-Champaign, Kansas State University, and by the project "Private Sector Engagement in Conservation Agriculture Machinery and Service Provision to Smallholder Farmers" (USAID, Cambodia).

Location and description of the Action

A total of 31 service providers were interviewed (8 in Santuk district, 6 in Banon district, 10 in Rattanak Mondoul district and 7 in Samlout district). These districts cover upland areas, rainfed lowlands, flood plains and irrigated lowlands. The calendar of activities of each service provider, the costs and benefits of their activities were detailed out. Their potential interest for investing in a no-till planter was assessed, and, if they were interested, capacities for investment were discussed.



Examples of field operations (i.e., plough, ridge, sowing ...) and related area (ha) per operation of two service providers from Rattanak Mondoul (top) and Samlout (bottom) districts, Battambang

Expected impacts and prospects

To go further, demonstrations should be organized, involving retailers, service providers and farmers, to show how no-till planters' work and which benefits it may bring to farmers. Moreover, a process of demand-creation and market development bringing together service providers and farmers should be be organized in the coming months in several villages of Battambang to:

- generate farmers-to-farmers exchanges on the use of no-till planter and more broadly on Conservation Agriculture;
- show to service providers the demand from farmers and market potential for no-till planters ; and,
- discuss business models for this new service.

In addition, connections should also be built between small/ medium manufacturers, retailers and service providers to make no-till planters more available, accessible, affordable, and serviceable in local markets.

Useful links and contacts

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The present document is extracted from a R&D grant that has been financed by the French Agency for Development. The ideas and the opinions presented in this document are the ones of its authors and do not represent necessarily those of the AFD.