






Eco-weed management on PGS organic vegetables  
in Hoa Binh and Ha Nam province, Vietnam

(for ALiSEA Regional Meeting, Luang Prabang Mar 26-28,2024)

28/03/24  
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## Knowledge Hub classification Index

- ✓ **Associated KH Categories and Keywords**
  - > Select lexicon categories amongst the 18 categories
  - > Associate lexicon keywords


<p><b>Categories</b></p> <p>e.g. AE systems</p> <p>Input reduction</p>	<p><b>Keywords</b></p> <p>Eco-weed management</p> <p>Non-tillage</p> <p>Labor</p>
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**ALiSEA PRODUCT**


> Category of product in Alisea site

Check the box

Alisea Knowledge Product




## Section 1- General




✓ **Title on the case**  
Eco-weed management on PGS organic vegetables in Hoa Binh and Ha Nam province, Vietnam

✓ **Context of the case**


- In May 2022 when visiting PGS organic farms in Trac Van (Ha Nam), we observed problems of soil compact, weed development, and learnt from farmers that their soil quality has not really improved since they started organic production in 2013.
- Weed control takes the largest labor inputs from farmers.
- Farmers apply soil preparation (with a believe that): to control weed, losening soil to favor seed germination.
- **Ecologically speaking, too much soil disturbance is problem for weed development, soil compaction, pest and diseases, and overall farm productivity reduction.**



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## Section 2 – Categorisation of the case




✓ **Localisation**

- Trac Van commune / Duy Tien district / Ha Nam province / Vietnam
- Dong Suong commune / Luong Son district / Hoa Binh province / Vietnam

✓ **Agroecological system of the case context**

**Selection menu or entries boxes :** Zone

Main agricultural activities of the zone	<i>Plain</i>
Climate : tropical/sub equatorial	<i>PGS organic vegetables</i>
Rainy season	<i>Tropical</i>
Rainfall per year	<i>May-Sept</i>
Temperature avg max and avg min	<i>av. ~2,000 mm/year</i>
	<i>av. ~17°C - 30 °C</i>



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**Section 2 – Categorisation of the case**

✓ **Agroecologiness of the case**  
13 principles of HPLE from 1 to 5

13 Principles	1	2	3	4	5
Recycling					
Input reduction					
Soil health					
Animal health					
Biodiversity					
Synergy					
Economic diversification					
Co-creation of knowlegde					
Social values and diet					
Fairness					
Connectivity					
Land, natural resources governance					
Participation					

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**Section 3 – Description of the case**

✓ **Objective of the case**

The main objective of the proposal is to experiment if transplantation of well prepared & healthy seedlings (through nursery practices) in combinant with nontill culture (with some crop/weed residues left as soil cover and feeds for soil animals and microorganism) can effectively control weeds, boost crop development and improve overall soil quality and farmer's income.

✓ **Rationale/justification**

- The experiment aims to achive multiple AE benefits (as listed from 13 AE principles above)

✓ **Scale**

- RCBD (plot size of 4x6m in Trac Van and 4x4m in Dong Suong)


✓ **Actors**

- Farmer's groups, local authorities, traders


✓ **Calendar of implementation (Season1: 5-9/2023; S2: 8/2023-2/2024)**

A1	B1
B2	C1
C2	A2
A3	C3
C4	B3
B4	A4

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## Section 3 – Description of the case




✓ **Full description:**

**The eco-weed control is taken through 4 farm interventions**


- Non-/minimum soil tillage
- Soil cover (by manure and crop/weed residues)
- Using healthy seedings (through nursery)
- Manual weeding

✓ **Input Needs**

- Manures (prepared & decided by farmers)
- Materials for nursery construction (bamboo, plastics)

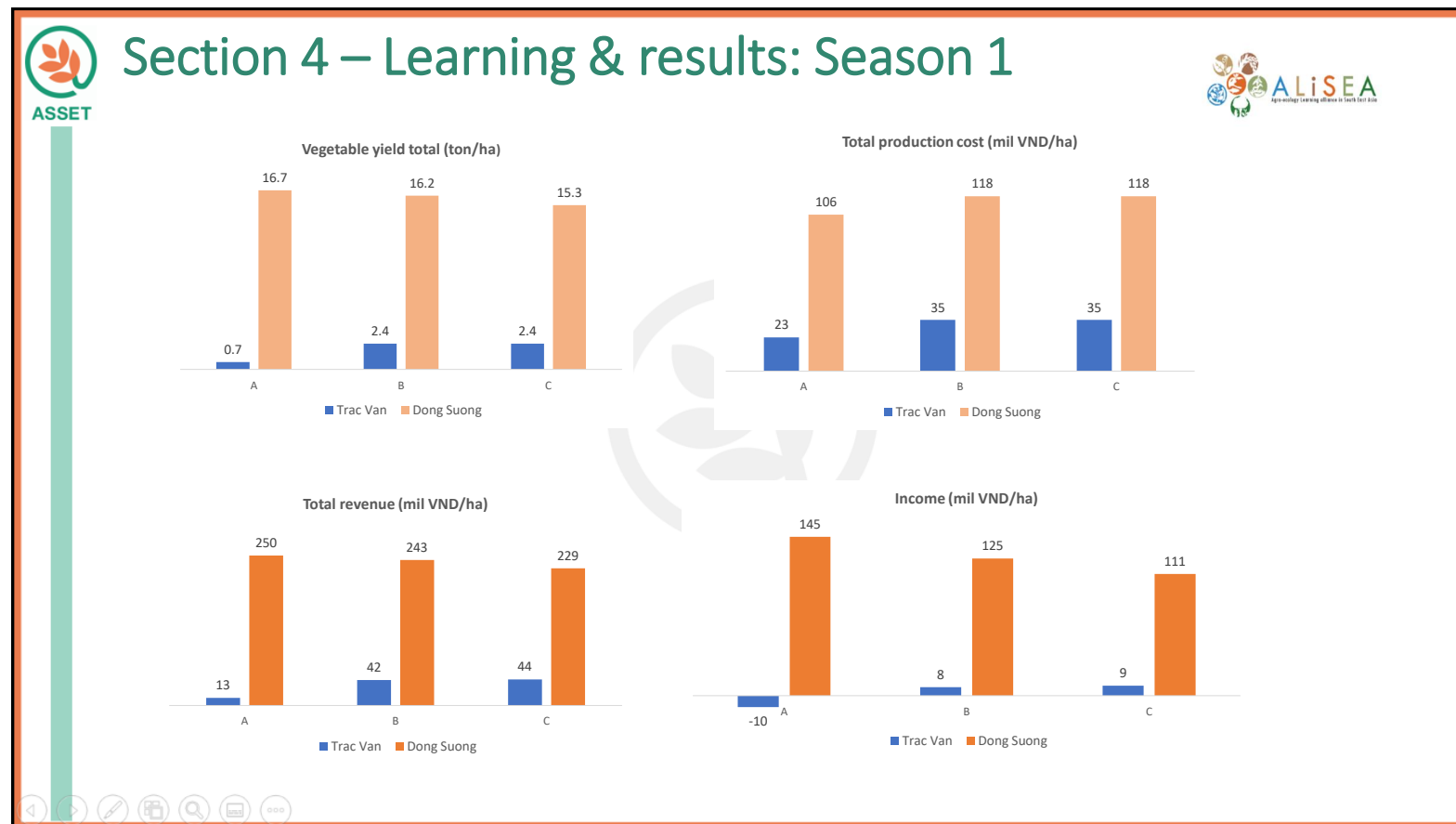


## Section 3 – Description of the case

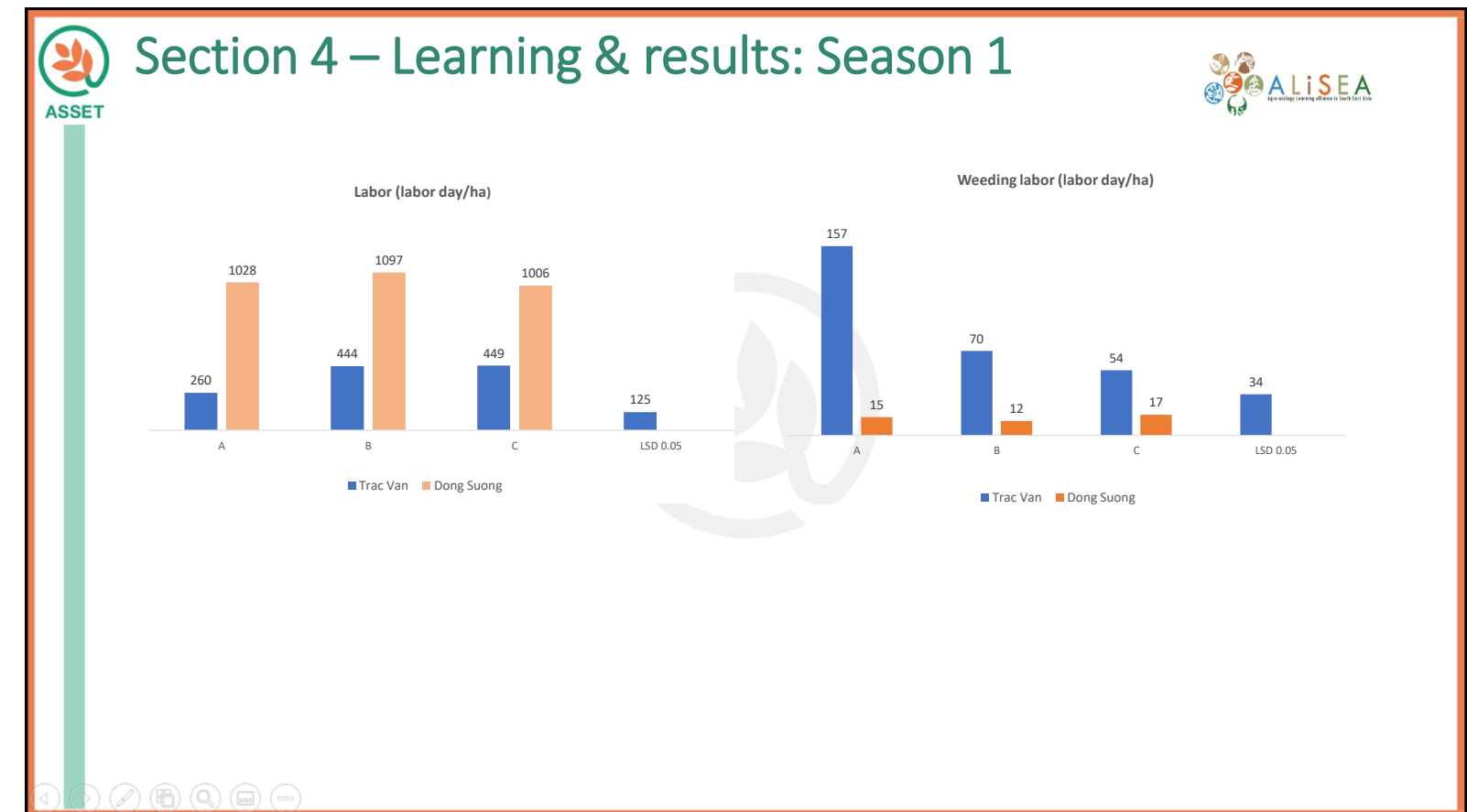


✓ **Full farmers' participation: Below is farmers's daily activity records**

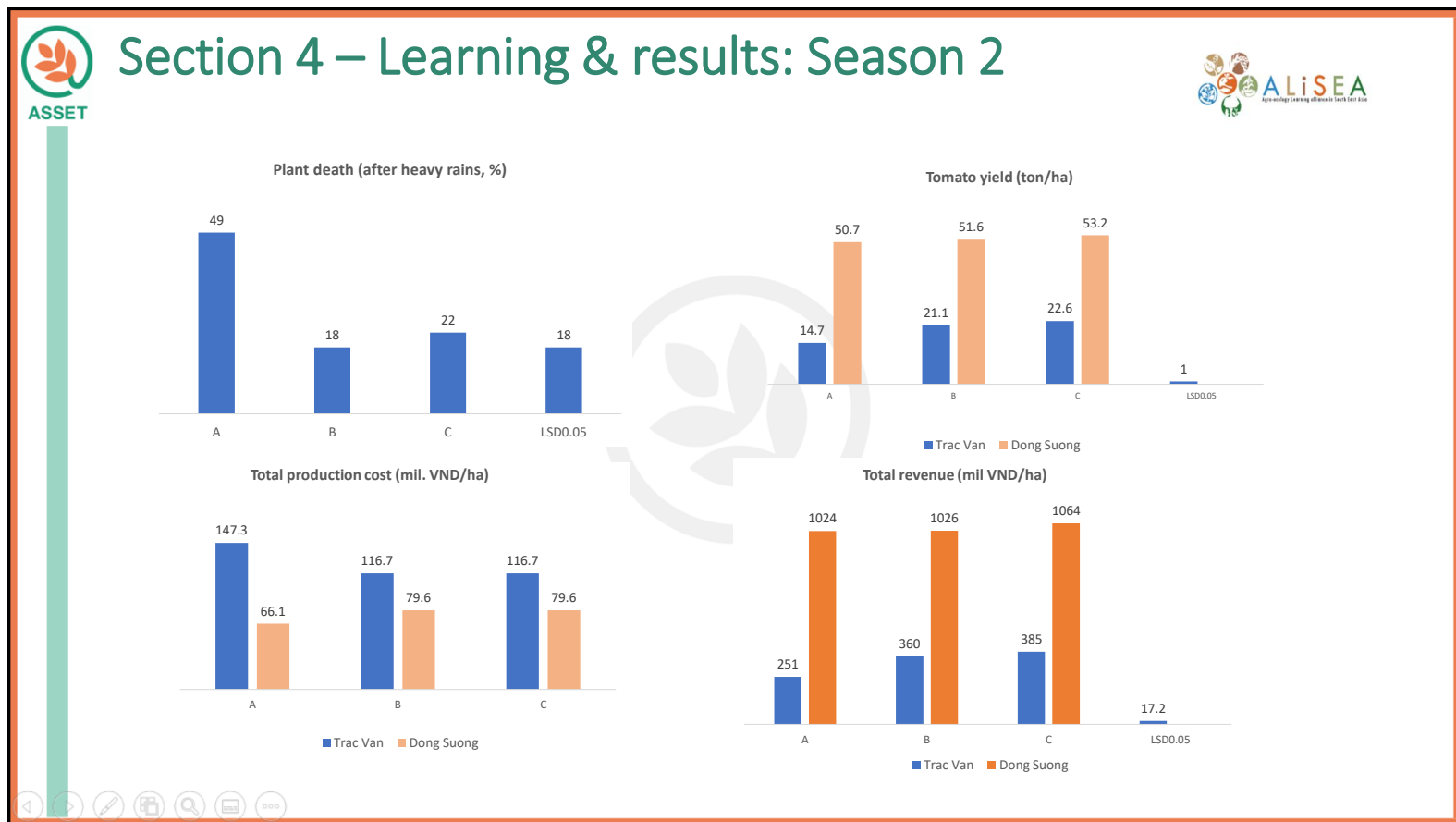
Ngày	Cây trồng	Công việc	Tên người	Bắt đầu	Kết thúc	Công	Ngày	Đ thi nghiệm	Tên ô	Mã công việc	Công việc	Sản lượng (kg)	Tên người	Bắt đầu	Kết thúc		
17/5						0,00	15/6	7	C3	Bón phân	* rắc phân bón		Lan	07:50	08:00		
18/5	Củi	phủ trâu	Huong	08:18:00	09:05:00	0,01	15/6	7	C3	che phủ hữu cơ	* che phủ hữu cơ		Lan	08:41	08:53		
			Nhan	09:00:00	09:07:00	0,01	15/6	7	C3	che phủ hữu cơ	* che phủ hữu cơ		Nhan	08:41	08:51		
			Lan	09:01:00	09:05:00	0,01	15/6	7	C3	Trồng bí	* trồng bí		Huong	08:47	08:52		
	đến	phủ trâu	Lan	09:07:00	09:24:00	0,04	15/6	7	C3	Trồng bí	* trồng bí		Lan	08:55	09:37		
	củi	Tưới nước	trời nước	Nhan	09:08:00	09:10:00	0,00	15/6	7	C3	Trồng củi	* trồng củi		Nhan	09:04	10:26	
	đến	Tưới nước	trời nước	Nhan	09:24:00	09:26:00	0,00	15/6	7	C3	Trồng củi	* trồng củi		Lan	09:38	10:25	
19/5	củi = đến	Tưới nước	trời nước	Nhan	06:08:00	06:10:00	0,00	15/6	7	C3	Trồng đến	* trồng đến		Lan	10:26	10:43	
20/5	củi = đến	Tưới nước	trời nước	Nhan	06:03:00	06:05:00	0,00	15/6	7	C3	Trồng đến	* trồng đến		Nhan	10:27	10:43	
22/5	củi = đến	Tưới nước	trời nước	Nhan	06:01:00	06:03:00	0,00	15/6	7	C3	Trồng đến	* trồng đến		Lan	16:10	16:40	
23/5	bí đỏ		chẩn bị đất	Lan	09:58:00	10:13:00	0,03	15/6	7	C3	Trồng đến	* trồng đến		Nhan	16:10	16:40	
			cho đất vào khay	Lan	10:13	10:19	0,01	15/6	9	B3	Trồng bí	* trồng bí		Lan	16:41	16:58	
				Nhan	10:13	10:13	0,00	15/6	9	B3	Trồng bí	* trồng bí		Nhan	16:41	16:58	
			Xếp vỉ trí	Lan	10:19	10:26	0,01	15/6	9	B3	Trồng củi	* trồng củi		Lan	17:00	17:53	
			Tưới nước	Lan	10:26	10:28	0,00	15/6	9	B3	Trồng củi	* trồng củi		Nhan	17:00	17:53	
			gạo hạt	Lan	10:32	10:45	0,03	16/6	9	B3	Trồng đến	* trồng đến		Lan	07:00	07:55	
				Nhan	10:33	10:45	0,03	16/6	9	B3	Trồng đến	* trồng đến		Nhan	07:00	07:55	
			phủ trâu	Lan	10:45	10:50	0,01	16/6	4	B2	Làm đất	* làm đất		Lan	07:58	08:25	
24/5	3 loại	Tưới nước	trời nước	Nhan	06:00	06:03	0,01	16/6	4	B2	Làm đất	* làm đất		Nhan	07:58	08:25	
27/5	3 loại	Tưới nước	trời nước	Nhan	06:02	06:03	0,01	16/6	4	B2	Bón phân	* bón phân		Lan	08:27	08:36	
							17/6	4	B2	che phủ hữu cơ	* phủ rơm		Lan	08:36	08:45		
28/5	3 loại	Tưới nước	trời nước	Nhan	06:02	06:03	0,01	16/6	4	B2	Trồng bí	* trồng bí		Nhan	08:27	09:00	
30/5	3 loại	Tưới nước	trời nước	Nhan	06:02	06:04	0,00	16/6	4	B2	Trồng củi	* trồng củi		Lan	08:47	10:10	
			Tưới nước	trời nước	Nhan	18:05	18:06	0,00	16/6	4	B2	Trồng đến	* trồng đến		Nhan	09:02	10:10



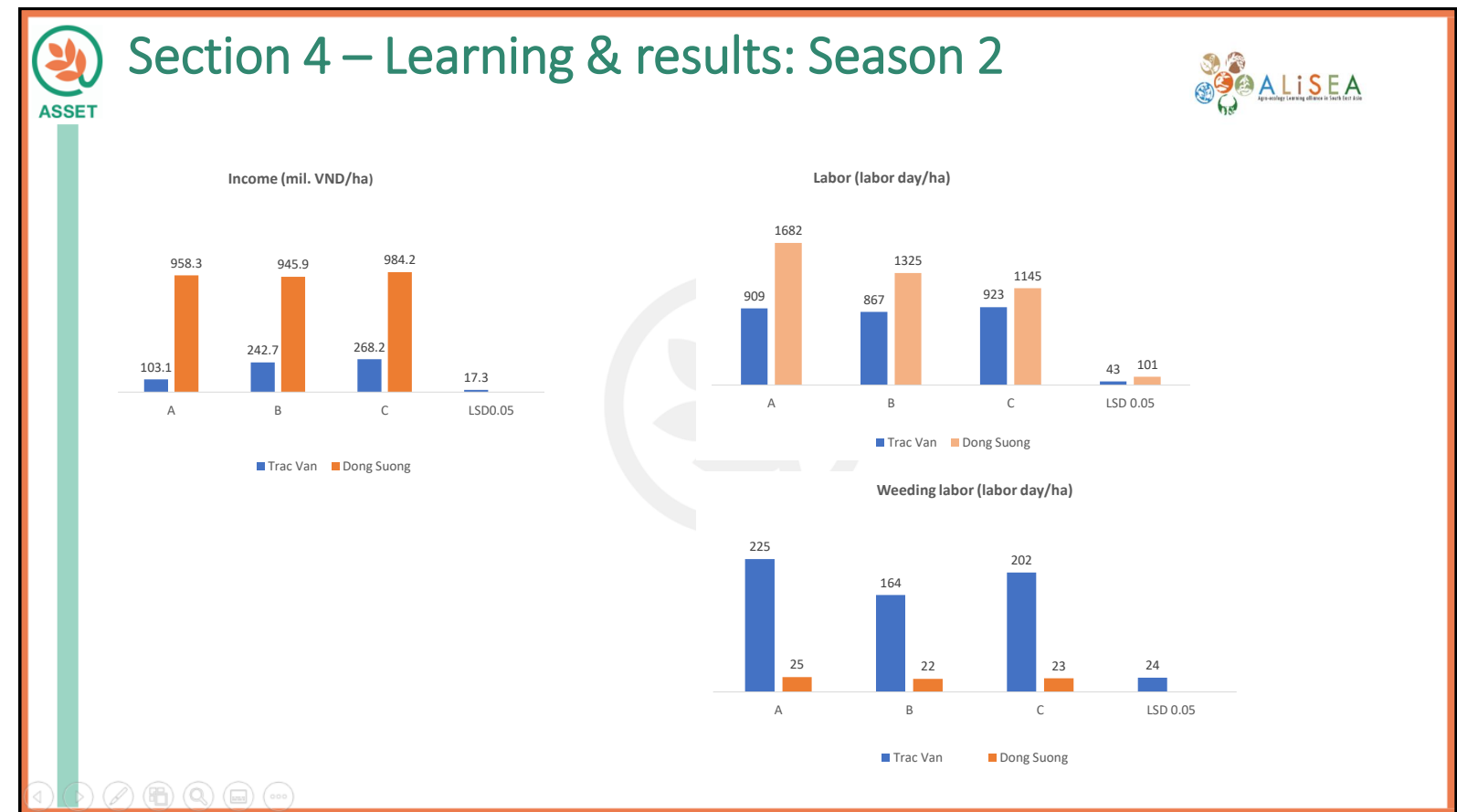
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## Section 4 – Learning & results




**✓ Accessibility of the practice or approach**


- Eco-weed management can be applied by all farmers having annual (terrestrial) crops

**✓ Strength & weaknesses analysis**


- . Describe Strength/advantages of the practice/approach
  - The practices are not difficult for farmers to apply
  - Quickly see the positive impacts (rate of plant death after heavy rains, soil erosion...)
- . Difficulties of the practice approach
  - Farmers remain a strong (wrong) believe on positive effects of soil preparation (loosening soil, weed control...).




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## Section 5 – Recommendations



- ✓ Cropping yield in plot C (nontillage) is similar or (even significantly) higher than that in plot A (farmers' practices).
- ✓ Nontillage and nursery practices help reduce risks of plant death after plantation in rainy season.
- ✓ Nontillage help farmers saving labor for weed control.
- ✓ Eco. return from plot C is more stable (bw 2 seasons) and higher than that of plot A triển của cây.



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### Section 6 – pictures of nursery practices


The slide features three photographs illustrating nursery practices. The top-left photo shows a person wearing a blue shirt and a hat working with seedlings in a nursery under a striped tarp. The bottom-left photo shows several black trays filled with young green seedlings. The right-side photo shows a long, covered bed of seedlings in a nursery.

### Section 6 – pictures of experiment designs

The slide features three photographs illustrating experiment designs. The top-left photo shows a field plot with rows of plants and a label 'B1'. The bottom-left photo shows a trellis system with plants and a label 'C2'. The right-side photo is a close-up of a plant with a label 'B2'.




 Section 6 – pictures of the difference in soil erosion A & C



More soil erosion happened in the plot A (left) as compared to plot C (right). Under rainfall, more water saturation happens in the plot A, causing higher percentage of plant death (than in the plot B & C).

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 Section 6 – pictures of the crop collapse



Tomato in Trac Van was on Dec 23, 2023 (left) and on Jan 19, 2024 (after heavy rains, followed by disease expansion)

Soil degradation (causing poor OM) could highly explain for the crop collapse.

Why does added OM will help? I learnt that the insect hiding themselves in the soil. Tks  
07:56 ✓

1 Unread Message

It's a scientific fact. There's a paper by Dr Christine Johns, you may search.  
It says, "if there's more OC, ie more organic carbon, in soils the insect run away. We have seen this happening. The yellow stem borer of rice is vanished at my farm from last 7 years."  
10:12

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