



SDI Review Form 1.6

Journal Name:	International Journal of Plant & Soil Science
Manuscript Number:	Ms_IJPSS_25339
Title of the Manuscript:	Dynamics of Soil Carbon, Nitrogen and Soil Respiration in Famer's Field with Conservation Agriculture, Siem Reap, Cambodia
Type of the Article	Original Research Article

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)



SDI Review Form 1.6

PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	<p>Line 26: It has been 37 claimed that components of CA promote soil health, productive capacity, and ecosystem services REVIEWER: Use 'Conservation Agriculture' here as well as CA. Even though it is defined in the Abstract, it should also be added here.</p> <p>Line 67: No-till 68 system may promote N₂O emissions. REVIEWER: Add reference</p> <p>The introduction is too long. You don't need so much detail on CA. REVIEWER: Please change accordingly</p> <p>Line 91 The geographic location of the study sites is shown in Figure 1. Briefly, the 15 study sites 92 were located in three villages in Siem Reap Cambodia: O'Village (13°19'22.9"N; 93 103°56'50.62"E); Sratkat village (13°20'55.57"N; 104°02'45.11" E); and Soutrikum Village 94 (13°16'48.66"N; 104°07'47.85"E). REVIEWER: You should eliminate the table from Figure 1 because it repeats the information provided here.</p>	<p>Line 37 was revised according to reviewer's comment: of conservation agriculture (CA)</p> <p>References were added: No-till system may promote N₂O emissions [17, 18, 19].</p> <p>Introduction section was trimmed down to a minimum in order to preserve the overall goal of our paper, i.e. compare and contrast CA and CT in terms of Carbon and Nitrogen dynamics.</p> <p>Table below Figure 1 was deleted as suggested by the reviewer.</p>



SDI Review Form 1.6

	<p>REVIEWER: Line 101 to 105. I don't understand why this is important.</p> <p>Line 106 :In CA, tillage was no longer repeated after the first crop production, dry rice straws 107 (<i>Oryza sativa</i> L.) of about 15 Mg ha⁻¹ were placed on top of the vegetable beds' surface as mulch 108 (8 cm height). A cover crop <i>Crotolaria juncea</i> L. was planted at 0.5 m apart at a rate of 30 kg ha⁻¹ 109 1 between rows of crops. One week prior to harvesting the main crop, <i>Crotolaria juncea</i>, was 110 then cut from the base of the stem, laid on top of the soil, and covered with rice mulch with the 111 same rate as above. Holes were dug at about 10 cm in diameter and by 10-12 cm depth for 112 planting the next crop. In CT, the soil was continuously tilled at about 20 cm depth, using hoe 113 and moldboard plow drafted by two buffalos. The soils were then evened out using rakes, beds 114 remade, remaining residues taken out and sometimes burned, and holes manually dug for the 115 next crop (Figure 3).</p> <p>REVIEWER: Start this paragraph by talking about CT. Describe it in detail. Then talk about CA, and how it differs.</p> <p>REVIEWER: In section 2.2, it is not possible to understand how the plots were laid out in relation to the treatments. As a result, the statistical results cannot be evaluated properly. How were the plots laid out (randomly?) and were there subplots? Line 118, for example reads: Each plot</p>	<p>I beg to disagree with the reviewer, the statement on Lines 101-105 is important to the overall goal of our paper, hence to be retained as reported.</p> <p>The paragraph was revised: In CT, the soil was continuously tilled at about 20 cm depth, using hoe and moldboard plow drafted by two buffalos. The soils were then evened out using rakes, beds remade, remaining residues taken out and sometimes burned, and holes manually dug for the next crop (Figure 3).</p> <p>The section was revised in the manuscript: The experiment was laid out in randomized complete block design. Each farmer's plot was divided into four sections and was randomly assigned with treatments</p>
--	--	---



SDI Review Form 1.6

	<p>measuring 100 m² was replicated five times. Then, line 123 reads: Within each farm, CA and 124 CT experimental units covering an area of about 25 m² were sampled diagonally in two depths; 125 surface (0-10 cm) and bottom (10-20 cm) layers. Five subsamples were taken...</p> <p>Line 125: Five subsamples were taken, REVIEWER: How and with what?</p> <p>Line 148: Soil respiration was measured 12 times REVIEWER: When during the day?</p> <p>Line 201: It is generally recognized 202 that the differential effects of crop rotations on SOC are simply related to the amount of above 203 and belowground biomass produced and retained in the system. REVIEWER: Isn't this obvious. How else would SOC increase?</p> <p>REVIEWER: Lines 208-230. This paragraph adds nothing to the discussion and should be deleted. Or you need to incorporate this</p>	<p>CA and CT. Each treatment was replicated five times. Crop history and/or different crop rotations for the three villages during the study period are presented in Table 2.</p> <p>Soil samples were collected diagonally from both CA and CT plots in 2 depths (surface 0-10 cm and bottom 10-20 cm) using a stainless steel trowel as described in the NRCS Soil Quality Test Kit.</p> <p>Soil respiration tests were conducted between 10:00am and 3:00pm.</p> <p>This statement was added: The need to retain crop residues is important because of positive effect on increasing the amount of SOC as opposed to the traditional way of burning residues in the field.</p> <p>The paragraph was revised: Although substantial amount of work has been conducted on the individual influence of reduced tillage, residue retention, and crop rotation on soil organic carbon contents, results reported in the literature have mixed review. For instance, Govaerts et al. [31] inferred the potential for CA to</p>
--	---	--



SDI Review Form 1.6

		<p>increase soil organic carbon based on results from studies showing soil degradation when reduced tillage is practiced without ample residue cover in rain-fed or irrigated conditions in semi-arid or arid areas. Moreover, the findings of West and Post [32] has served as another basis when their analyses of 67 international studies revealed that experiments on wheat (<i>Triticum aestivum</i>) under no-till appeared to have greater SOC when wheat is rotated with one or more different crops (i.e., wheat-sunflower, <i>Helianthus annuus</i> or with wheat-legume) rotations in comparison to continuous wheat. In crop rotations involving winter vetch (<i>Vicia villosa</i>) planted as an additional legume in the cropping sequence SOC was significantly greater under zero tillage than under CT. In crop rotations involving winter vetch (<i>Vicia villosa</i>) planted as an additional legume in the cropping sequence SOC was significantly greater under zero tillage than under CT. However, the kind and number of rotation crops also matter. After 13 years of experimental data collection, West and Post [32] found no significant difference in SOC between zero tillage and CT under continuous wheat and soybean (<i>Glycine</i></p>
--	--	--



SDI Review Form 1.6

	REVIEWER: Add sample sizes to all tables.	<i>max</i>) sequence. Many of the differences of SOC accumulations may be due to soil type, topographic position, parent material and potentially their interactions and combination with management. Sample sizes were added to each table.
<u>Minor</u> REVISION comments	The authors should engage a fluent English-language speaker to read and edit the manuscript. There are numerous grammatical and spellings errors throughout the manuscript.	On behalf of my co-authors, I am extending our deepest appreciation to the reviewer for his/her review and comments. Given his/her honest efforts, the manuscript now has been improved for publication.
<u>Optional/General</u> comments		