ラオス中部の田越し灌漑水田では水不足による移植の遅れが水稲減収をもたらす

Late transplanting caused by water shortage leads to yield reduction in plot-to-plot fields in Central Laos

ラオス中部の中山間地農村の田越し灌漑水田において、下流側の圃場では上中流域に比べて田面の湛水開始が遅く、移植の時期も遅れる（図1）。移植後は水田域全体で概ね水不足は生じていない。

収量の低い圃場の多くは水田域下流側に分布する。水稲粗収量は7月中に移植を終えた圃場の方が8月に移植を行った圃場よりも大きくなる（表2）。水稲粗収量と土壌肥沃度（窒素、リン）の間には相関が見られない。田越し灌漑水田の下流域圃場では、水不足による移植の遅れが水稲の減収をもたらしており、7月中に移植を完了することが望ましい。

In plot-to-plot fields in a semi-mountainous village of Laos, field ponding and transplanting in the lower fields start later than in other areas (Fig. 1). Data showed that grain yield was higher in fields transplanted in July than those in August (Table 1). It was also noted that there was no correlation between soil fertility and rice grain yield. The results suggested that late transplanting caused by water shortage led to yield reduction in the lower fields of the plot-to-plot irrigated area. To increase grain yield in the lower fields, it is recommended that transplanting be completed by the middle of July.

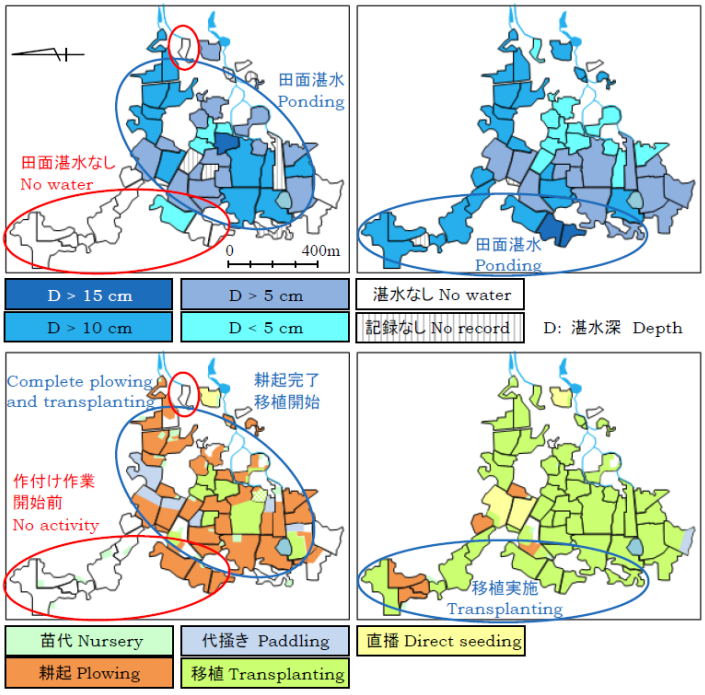

図1　N村の田面湛水の分布（上）と水稲関連作業の実施状況（下）
Fig. 1. Surface water depth (upper) and practiced farming activities (lower) in each field

表1　田面湛水開始時期および移植時期と水稲収量の関係
Table 1. Relationship between grain yield and starting times of ponding, transplanting

区分 Classification		N*	平均粗収量 Avg. grain yield t ha^{-1}	備考 Note
田面湛水開始時期 Start time of ponding	7/20以前 Before 20 Jul	108	3.87 ^{a}	a, b間に$p < 0.05$の有意差あり（t 検定） Significant difference between a and b at $p < 0.05$ according to t test
	7/21以降 After 21Jul	29	2.22 ^{b}	
移植時期 Start time of transplanting	7/14以前 (Before 14 Jul)	28	4.20 ^{a}	a, b間に$p < 0.05$の有意差あり（Tukey-HSD検定） Significant difference between a and b at $p < 0.05$ according to Tukey-HSD test
	7/15 – 28 (15 -28Jul)	64	3.68 ^{a}	
	7/29 –8/11 (29Jul to 11Aug)	45	2.88 ^{b}	

* 図1に示す圃場のうち47圃場（面積が大きい3圃場については上下流に2分割し、合計50圃場とした）に各3区画の収量調査区（1 m×1 m）を設けた。合計150区画のうち、直播が行われた9区画と収量調査前に農家が収穫を行ったためサンプリングできなかった4区画を除外した137区画について、田面湛水開始時期、移植時期との関係性を分析した。
* Sampling quadrats (1 m × 1 m) were installed in 47 field blocks shown in Fig. 1. Three large field blocks were divided into two parts, and three quadrats were installed for each (in total 150 plots in 50 blocks). The relationship between yield and times of field ponding and transplanting were analyzed. The 13 samples (4 plots harvested by farmers before sampling and 9 plots in direct seeding field) were excluded from the analysis (n = 137).

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