

# サトウキビ野生種を利用しタイで共同育成したサトウキビ新品種

## New sugarcane varieties using wild sugarcane and collaboratively bred in Thailand

TPJ03-452、TPJ04-713、TPJ04-768は、製糖用品種・系統とタイ国内に分布するサトウキビ野生種(*Saccharum spontaneum*)との種間雑種のBC<sub>1</sub>集団から選抜した品種であり、2015年2月25日にタイ農業局で品種登録された(表1)。TPJ03-452とTPJ04-768は、製糖用普及品種Khonkaen3やK88-92と比べて、砂糖収量は同程度であるが、繊維収量は1.6倍以上になる(表2、図1)。糖質は砂糖として食用に使われるだけでなく、バイオエタノール生産の原料になり、製糖工場の副産物である繊維質のバガスから発電が可能である。TPJ04-768は、厳しい乾季を持つ東北タイでも株出し栽培における収量減が少ないため、糖質や繊維質の生産性が高いサトウキビとして、多回株出し栽培が期待される。

Interspecific hybridization between commercial cultivars of sugarcane and *Saccharum spontaneum* (wild sugarcane) clones, which were collected from all over Thailand, was carried out and from the BC<sub>1</sub> population, TP J03-452, TPJ04-713, and TPJ04-768 were selected and registered as new varieties of sugarcane by the Department of Agriculture, Thailand on February 5, 2015 (Table 1). The sugar yields of TPJ03-452 and TPJ04-768 were at a comparable level with those of commercial cultivars, Khonkaen3 and K88-92, but the fiber yields were at least 1.6 times higher than those of Khonkaen3 and K88-92 (Table 2 and Fig. 1). Sugar is a food component and can also be a source of bio-ethanol, whereas electricity can be generated from bagasse, a byproduct of sugarcane fiber.



表1 新品種の来歴

Table 1. History of new sugarcane varieties

Name of variety	Mother plant	Father plant
TPJ03-452	Uthong1	F <sub>1</sub> interspecific hybrid (K84-200 x <i>S. spontaneum</i> )
TPJ04-713	CP72-5028	F <sub>1</sub> interspecific hybrid (88-2-401 x <i>S. spontaneum</i> )
TPJ04-768	94-2-128	F <sub>1</sub> interspecific hybrid (88-2-401 x <i>S. spontaneum</i> )

Except for *S. spontaneum*, names of commercial cultivars or lines are indicated.

図1 TPJ03-452(左)とTPJ04-768(右)の草姿(新植栽培)、2013年10月撮影  
Fig. 1. TPJ03-452 (left) and TPJ04-768 (right) planting canes.  
Photos taken in October 2013.

表2 新品種の単位面積あたりの原料茎収量、砂糖収量および繊維収量

Table 2. Millable cane yield, sugar yield, and fiber yield of new sugarcane varieties per hectare

Name of variety	Millable cane yield (t/ha)			Sugar yield (t/ha)			Fiber yield (t/ha)		
	1st year	2nd year	3rd year	1st year	2nd year	3rd year	1st year	2nd year	3rd year
TPJ03-452	105.1	76.0 (72)	58.7 (56) a	10.7	10.4 (97)	4.6 (43) a	19.7	12.1 (62)	9.4 (48) a
Khonkaen3	91.4	64.9 (71)	36.5 (40) a	13.2	9.7 (73)	4.4 (33) a	10.8	7.8 (72)	3.4 (32) b
K88-92	92.9	58.9 (63)	39.0 (42) a	10.9	7.9 (73)	4.0 (37) a	9.7	5.5 (56)	3.6 (37) b
TPJ04-713	76.8	77.2 (101)	a	6.6	6.8 (103)	a	9.6	9.3 (97)	ab
TPJ04-768	77.1	79.5 (103)	a	8.9	10.1 (113)	a	13.3	11.9 (89)	a
Khonkaen3	84.0	61.9 (74)	a	12.2	8.6 (70)	a	8.8	7.0 (80)	b

Results at the Tha Phra branch of Khon Kaen Field Crops Research Center (KKFCRC) are shown in the upper table. Sugarcane was planted in March 2008 with two replications; the planting cane of the first year was harvested in February 2009, the first ratoon cane of the second year was harvested in January 2010, and the second ratoon cane of the third year was harvested in December 2010. Results at the KKFCRC were shown in the lower table. Sugarcane was planted in May 2013 with four replications; the planting cane of the first year was harvested in March 2014, and the first ratoon cane of the second year was harvested in March 2015. Sugar yield (Commercial cane sugar (CCS) yield) = millable cane yield x CCS (%) / 100. CCS (%): % of calculated recoverable sugar from millable cane. Fiber yield = millable cane yield x fiber content (%) / 100. Figure in parentheses indicates the relative yield of the second or the third year to the yield of the first year. The varieties with same letter in the column are not significantly different according to the Tukey's method at P = 0.05 in two-way analysis of variance among varieties and years.

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