

## PO3 – A NEW QUALITY POTATO VARIETY



**A PO3 field at Xuan Tho commune, Dalat**

In Vietnam, with an increasing trend in potato consumption, the quality consciousness has also been upgraded. The consumers nowadays tend to discriminate better between the varieties for their taste and flavor. As processed potato

products such as French fries and crisps (chips) gain more and more popularity as fun and snack foods, especially among the young generation, and processing industry is being quickly developed, new potato varieties with acceptable processing quality and well adapted to the local growing conditions have become an urgent demand in the potato market.

PO3 is a late blight resistant potato variety selected and developed by the Potato, Vegetable & Flower Research Center during the period 2000 -2004. The variety has been evaluated for field performance under the conditions of Dalat and the Red River Delta (RRD). In Dalat, results from field trials show that PO3 has a high tuber yield potential of 25-35 ton/ha, about 50 - 100 % higher than that of the local existing varieties 06 and 07 (Table 1 & 2).

**Table 1: Growth, degree of late blight infection and tuber yield of tree potato varieties (Winter crop, 2001, Dalat)**

Variety	Growth 60 DAP (1-9)	Late blight 60 DAP (1-9)	Tuber #/ plant	Tuber Weight/ plant (g)	Market yield (ton/ha)	Total yield (ton/ha)
PO3	9	1	11 a	765 a	26.7 a	29.6 a
45.3	8	3	9 ab	600 b	20.3 b	23.2 b
07 (c)	7	3	8 b	475 c	16.0 c	18.4 c
CV (%)	-	-	18.6	5.7	5.8	5.8

Note: DAP: days after planting, Growth (1-9): 1 = very poor growth; 9 = profuse growth  
Late blight (1-9): 1 = no symptoms or just traces; 9 = over 90 % halm infected.

**Table 2: Growth, degree of late blight, bacterial wilt and virus infection and tuber yield (Summer-Autumn crop, 2002, Dalat)**

Variety	Growth 60DAP (1-9)	Late blight 60 DAP (1-9)	Late blight 70 DAP (1-9)	% Bact. wilt	% virus	Tuber weight/ plant (g)	Yield (ton/ ha)
PO3	8.7a	1.0c	2.0c	2.3c	0	924a	33.3a
O7	7.7b	3.3b	5.0b	12a	4.5	315b	11.3b
O6	7.8b	4.9a	7.8a	9.4b	7.0	352b	12.7b
CV(%)	3.57	16.7	11.26	12.6	-	9.69	9.8



**PO3 harvest in Dalat during the dry season 2004**

In the RRD, PO3 yield ranged from 18-30 ton/ha comparable to that of the varieties Eben and KT3 during the winter cropping seasons. In terms of quality traits, PO3 is superior for its high dry matter content (24.7 % under the dry season at Dalat), low reducing sugar content (0.208%) and low color change index (1.75) (Table 3 & 4). In frying and cooking tests for French fries and chips, PO3 gave a very good taste and showed unchanged uniform light yellow color. These quality traits coupled with good tuber morphology as shallow eyes, light yellow flesh and round oval tuber shape indicate that PO3 is probably the most suitable for processing industry among the varieties currently being in production at Dalat.

Owing to its high yield potential and qualities, PO3 has been quickly and widely adopted by the potato growers in Dalat and RRD for commercial production. In large scale

production at farmer field in Dalat, PO3 yields over 30 ton/ha in most cases. This indicates that yield stability of the variety is very high, despite the fact that it's very high level of late blight resistance seems to be broken down during the rainy season 2002, due to probably the occurrence of a new pathotype (physiological race) of *Phytophthora infestans*.



**Table 4: Frying quality of six potato varieties grown during the winter season in the Red River Delta (*Food Crops Research Institute*)**

Varieties	Reducing Sugars (%)	Color index (*)	Color change tendency
Dawmor	0.220	2.3	no
PO3	0.208	1.75	no
TK 51.6	0.267	1.65	no
KT3	0.313	3.35	yes
Eben	0.213	1.75	no
Granola	0.240	1.65	no
CV(%)	2.0	2.1	

(\*) By Munsell Color Company Card of Evaluation of french fries and crisps.