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## Comparison of production and cost between conventional and organic forage crops

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**Key words** : forage production , production cost , corn , sorghum , sorghum×sudangrass

**Introduction** One of prerequisites for organic livestock production is to secure the use of organic feeds . It is assumed that due to use of chemical fertilizers and pesticides , conventional cropping system achieves the higher productivity than organic farming system , while organic production practices cost less than conventional ones(Lockereta et al , 1990) . Thus , the study was aimed to investigate and compare the productivity and production cost between conventional and organic silage crops in South Korea .

**Materials and method** Three crops , corn(*Zea mays*) , sorghum(*Sorghum bicolor*) and sorghum×sudangrass hybrid(*Sorghum bicolor*×*sorghum sudanense*) were examined for their productivity and production cost in conventional and organic cropping systems . Productivity of crops and their production cost were measured with 40 , 5 and 10 hybrids of corn , sorghum and sorghum×sudangrass , respectively , at conventional and organic farms for five and three years , respectively .

**Results and discussion** The results were summarized in Table 1 . Harvest yields of corn , sorghum and sorghum×sudangrass in conventional cropping system were 14 ,265 , 23 ,780 and 20 ,867 kg/ha , respectively , showing that corn was lower productivity by 67 and 46% than sorghum and sorghum×sudangrass . It was showed that corn , sorghum and sorghum×sudangrass were 3 , 167 , 2 ,580 and 2 ,696 US \$ /ha , respectively in conventional cropping system . Corn production cost per kg dry matter was about 2 times higher than that for the other crops . Harvest yields of corn , sorghum and sorghum×sudangrass in organic system were 8 ,965 , 17 ,719 and 15 ,260 kg/ha , respectively , showing that corn was lower productivity by 98 and 70% than sorghum and sorghum×sudangrass . Corn , sorghum and sorghum×sudangrass were 2 ,989 , 2 ,593 and 2 ,660 \$ /kg , respectively , in organic cropping system . As similar as the conventional crop production system , corn production cost per kg dry matter was about 2 times higher than that for the other crops . Land rental cost was highest in whole production cost , while fertilizer and labor cost were second and third in both systems .

**Table 1** Comparison of production yields and cost between conventional and organic silage crops in summer season .

Forage crops	Production yields (kg/ha)			Production cost ( \$ /kg)		
	Conventional	Organic	Difference	Conventional	Organic	Difference
Corn	14 ,265	8 ,965	5 ,300	3 ,167	2 ,989	178
Sorghum	23 ,780	17 ,719	6 ,061	2 ,580	2 ,593	-13
Sorghum×sudangrass	20 ,867	15 ,260	5 ,607	2 ,696	2 ,661	35

**Conclusions** Organic sorghum production was higher than the other organic corps while its production cost was lower than the others . Therefore , it is suggested that sorghum can be a good candidate forage crop in organic cropping system in South Korea .

### Reference

Lockereta W , Shearer G , Kohl DH , Klepper RW (1990) Comparison of organic and conventional farming in corn belt . In : M . Kral et al . Organic farming : Current technology and Its Role in a sustainable agriculture . ASA special Publication Number 46 .