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**Presenter Information**

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## Nutrition management in fodder grass production for fisheries in Hubei

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**Key words :** nutrition, fertilization, fodder grass, fisheries

**Introduction** The Jiangnan plain region of Hubei province is renowned for its ability to supply superior quality rich rice and fish staples. Recent adjustment to China's national agricultural development plan have designated this region as one which is particularly favorable to continued development and expansion of in-land fisheries as a means for local economic improvement. Fresh fodder grass is a crucial feedstock for in-land fisheries. As the fodder grasses usually planted on poor and marginal land, improve its productivity through fertilization has been studied by the authors since 2003.

**Materials and methods** Field trial of fish grass was located in Datonghu State Farm, on alluvium soil with pH 8.2, OM 1.14%, available N 13.9 mg kg<sup>-1</sup>, P 13.0 mg kg<sup>-1</sup>, K 161.7 mg kg<sup>-1</sup>, respectively. The fish grass was Sorghum Sudanense which is one of the main fish grasses cultivars in the region. Four treatments as: (1) N, (2) NP, (3) NK, (4) NPK with fertilization rate: N 540 kg, P<sub>2</sub>O<sub>5</sub> 150 kg, K<sub>2</sub>O 135 kg ha<sup>-1</sup>. Urea as N source, SSP as P source and KCl as K source. All treatments with 4 repetitions and the plot area was 41.6m<sup>2</sup>. Grass seed was sowed on April 13<sup>th</sup> with rate 67.5 kg ha<sup>-1</sup>. The fish grass was harvested for 5 times on June 12<sup>th</sup>, July 11<sup>th</sup>, August 3<sup>rd</sup>, September 3<sup>rd</sup>, October 11<sup>th</sup>, respectively. The nutrient content and some quality index such as protein, fat and fiber contents of grass were tested, To study the effect of feed fish with the grasses from different fertilization treatments on fish growth, fish feeding experiment was also implemented. Plant analysis used routine methods.

**Results** The result showed that both P and K, when combined with N, increased fresh grasses yield compared to the check (table 1). The highest cumulative yield over 5 harvests was obtained with the NPK combination and it supported a marginally higher yield level for the second harvest period. The economic benefit from NPK treatment also increased net profits to farmers by US\$ 466 ha<sup>-1</sup>. Grass plant test result showed that plant K, P, Ca, Mg, Fe, Cu, Mn nutrient contents, crude protein and crude fat contents of NPK treatment were higher than other treatments, except crude fibre content. The fish feeding experimental result indicated that NPK treatment obtained highest fish production compared with other treatments.

**Table 1** Effect of fertilization on fish grass fresh yields and nutrient contents and fish growth.

Treatment	Grass yield (kg ha <sup>-1</sup> )	Grass N%	Grass P%	Grass K%	Fish weight (kg plot <sup>-1</sup> )
N (CK)	66.43 (100*)	2.39 a	0.178 ab	2.37 cd	3.23 c
NP	77.49 (116.6)	2.39 a	0.178 ab	2.35 d	2.24 d
NK	79.90 (120.3)	2.33 a	0.171 b	2.84 ab	4.89 ab
NPK	89.86 (135.3)	2.40 a	0.187 a	2.98 a	5.01 a

\* Numbers in parentheses represent percent (%) relative yield.

**Conclusions** Fertilization could greatly increase the fresh yield of fish grass in Hubei province. Balanced fertilization showed better response from grass yield, quality and economic profit. For fish feeding, the high quality grass from NPK treatment which was relative balanced plant nutrition obtained highest fish production in the experiment. Therefore, balance fertilization for fodder grasses should be recommended in this region.