VIETNAM ACADEMY OF AGRICULTURE SCIENCE
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Improving soil fertility by recycling rice plant residues

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Background

- **Around 50 million tons of rice straw residues are produced in Viet Nam,**
- **Most of it was burnt in the fields or along the roads,**
- **Wastes a valuable carbon source, but also causes air pollution and generates greenhouse gas (CO_2),**
- **Killed rice straw in the field by paraquate,**

Burning rice straw

Killed rice straw by herbicide

- **NOMAFSI has developed techniques for “quick composting” of rice plant residues by using EM product,**

- **Only 7-10 days after treatment with this EM product the field could be ready for the next crop cultivation,**

- **Rice plants expressed better growth with stronger root system and gave higher yield.**

Achievements

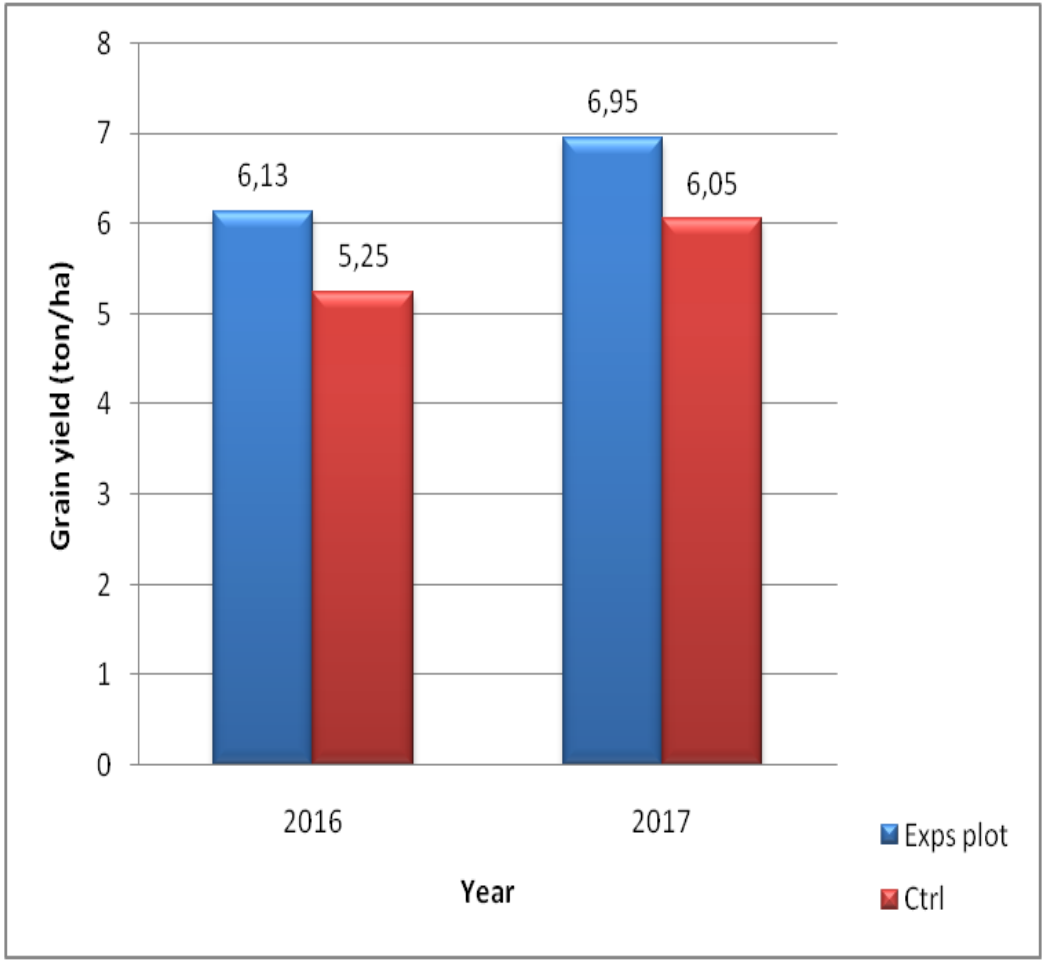
Trial in Vinh Kien commune

10 days
Without
EM

10 days
after using
EM

30 days after
transplanting

- Experiment plots applied ICM, FDP, biomass recycling
- Cotrol plots applied farmer's practice without biomass recycling
- The yield increase was 0.9 t/ha for both 2016 and 2017 summer crops. This resulted in a significant increase in both net and gross return (about 6 mil vnd/ha/crop).



On – farm experiments in Northern mountainous regions in 2017

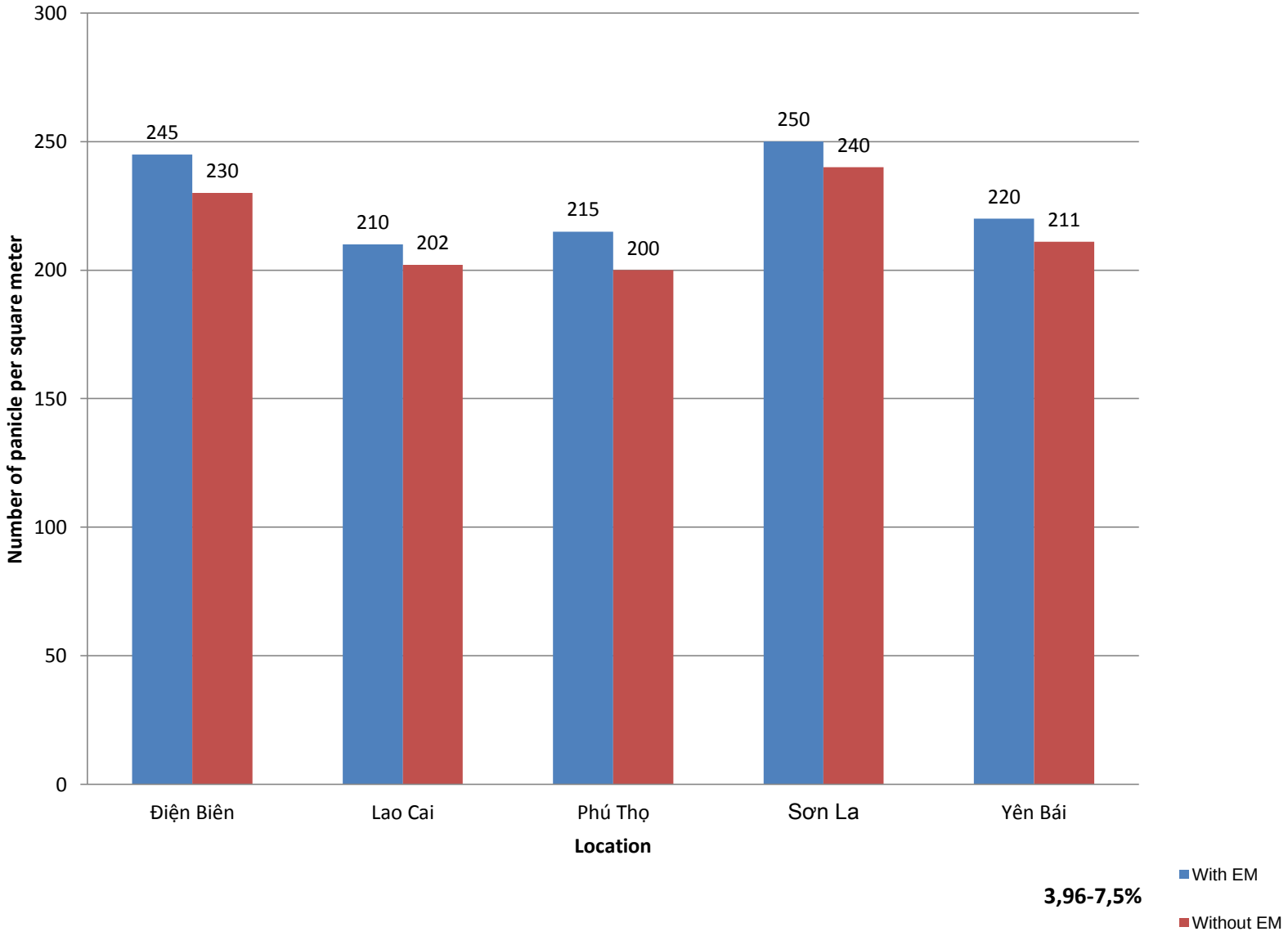
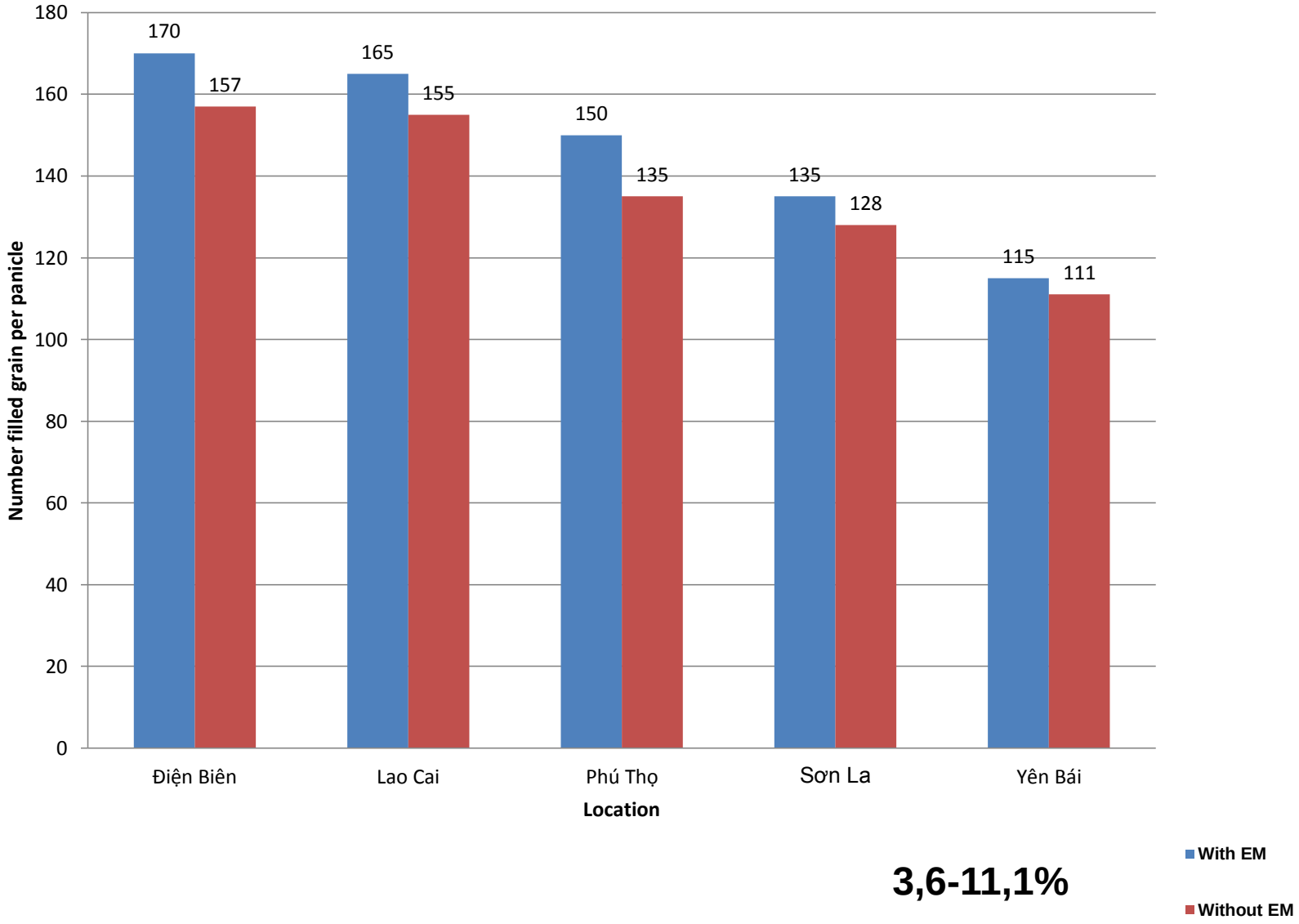


Figure 2: Number of panicle per square meter



3,6-11,1%

Figure 3: Number of filled grain per panicle

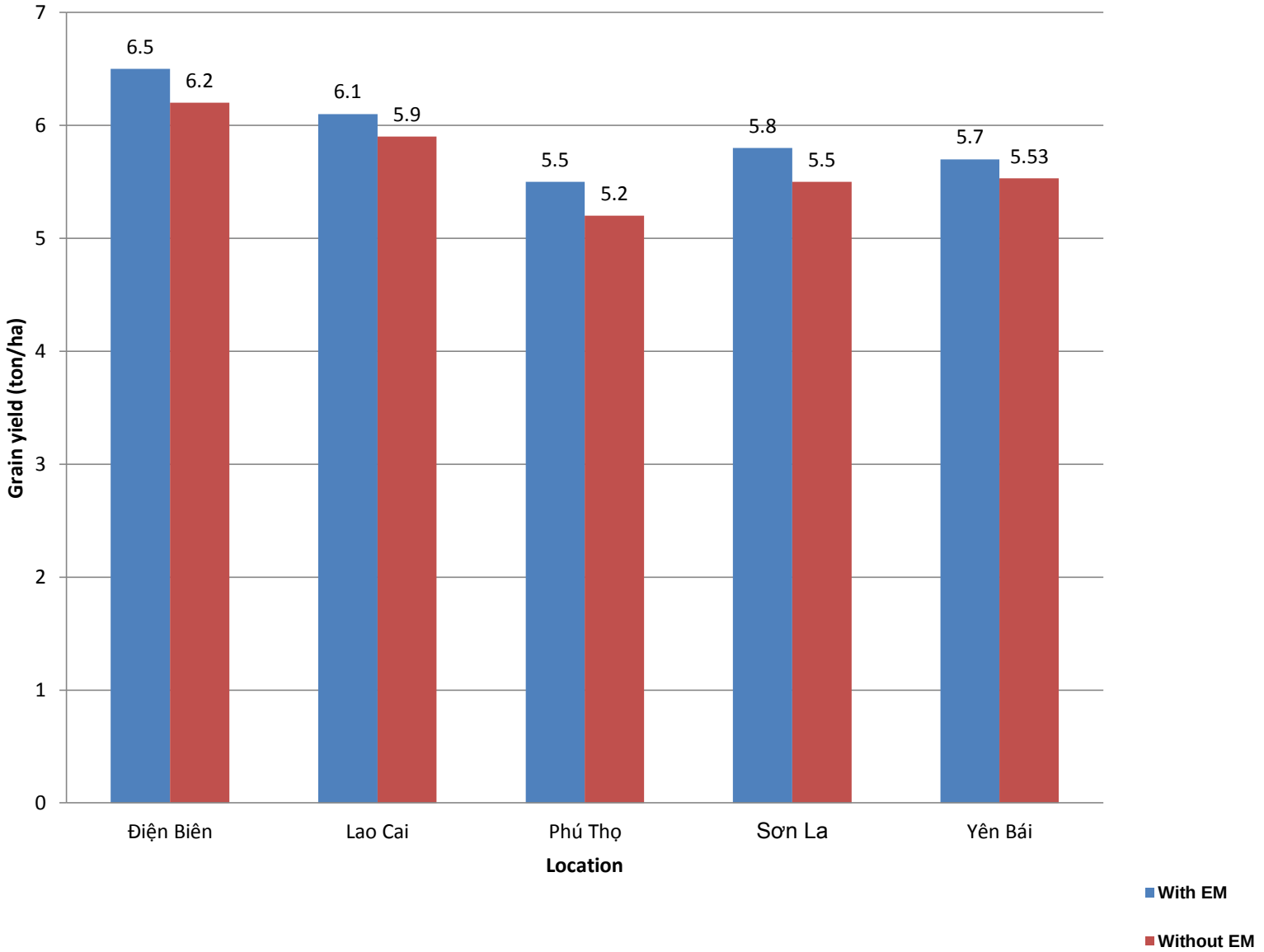


Figure 5: Grain yield

Recycling rice straw in the heap

Before using EM product

15 days after

35 days after

Potential challenges

- **Free time duration between two crop is very short, in some area this time is only 4-5 days, so rice straw was not completely decomposited.**

- **Machines were used to prepare land. It is difficult to farmers apply EM product on the field.**

- **Rice production efficiency is very low, a lot of local labor move to industries to work. So, lack of labor uses new practices.**

- **In the some location, farmers could not irrigate their field after harvesting first crop.**

- **With composting rice straw in the heap, it requires labor to collect and water rice straw, so farmers normally burn rice straw as simple method..**

Thank you for your attention