

Category	: International Rice Research Conference
Select Theme	: Sustainable and equitable farming systems
Endorsement email	:
Keyword 1	: Soil and soil health
Keyword 2	: Weed management
Keyword 3	:
Title of Entry	: Effect of herbicides on soil microorganisms in transplanted rice in rice – rice cropping system
Presenting author	: MKA Bhuiyan
Presenting author email	: bhuiyan072003@yahoo.com
Co author 1	: Romana Akter
Co author 2	: U A Naher
Affiliation presenting author	: senior scientific officer, Agronomy division, BRRI, Gazipur, Bangladesh
Affiliation 1	: scientific officer, Agronomy division, BRRI, Gazipur, Bangladesh
Affiliation 2	: Principal Scientific Officer, Soil Science division, BRRI, Gazipur
Select only one type of presentation	: 3-5 minute flash talk
Abstract	: The experiment was carried out in Agronomy research field and microbiology laboratory of Bangladesh Rice Research Institute (BRRI), Gazipur, Bangladesh during T. Aman 2016 and Boro 2016-17 to observe the effect of pre and post emergence herbicides on soil microorganism. Treatments consists in T. Aman 2016 were bensulfuron methyl+ acetachlor, bispyribac sodium (BS) + bensulfuron methyl (BM) , pyrazosulfuron ethyl(PsE)+ pretilachlor. Recommended rates of all herbicides were used for weed control. In Boro 2017 bispyribac sodium @ 100,150 and 200g ha-1 were used. Microbial population were determined during 3, 7,

10, 15, 20, 30 and 60 days after herbicide application (DAHA). In control plot it was observed during 0, 20, 40 and 60 DAHA. Nutrient agar and potato dextrose agar media was used for total bacterial and fungal population count. Results showed that herbicide treated soils at recommended rates showed a reduction in microbial counts compared to the control. At recommended rates of BM + acetachlor, BS+ BM and PsE+pretilachlor herbicides, bacterial counts were reduced at 3DAHA, afterwards increased at 7 DAHA. After 10 DAHA total bacterial population sharply increased upto 30DAHA then sharply decreased. For same herbicide application total fungus population sharply decreased at 3 DAHA. After that it slightly increased and peaked at 20 DAHA. After 20-30 DAHA, soil bacterial and fungal population fluctuate over times. Application of BS @100g ha-1 bacterial population declined upto 7 DAHA and sharply increased during 10-20 DAHA. Fungal population increased 3 DAHA peaked at 30 DAHA and upto 60 DAHA it fluctuated. Application of higher doses of BS @ 200g ha-1 reduced bacterial population upto 20 DAHA and thereafter increased sharply but fungal population reduced at 3 DAHA and increased at 7 DAHA, thereafter fluctuated. Therefore, application of herbicide reduced soil microorganisms in a certain time and after 7-20 days it becomes increased than before due to degradation of organic herbicides that provide carbon rich substrates which increased microbial population. Considering soil microflora population (total bacteria, and fungi) herbicidal treatments did not show any long run adverse effect on the rice field and safe in comparison to untreated control

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