

SUMMARY

Aldilla Dezjona Putri. 0810480007-48. The Effect of Media Composition on Bud Chip Techniques Three Varieties of Sugarcane (*Saccharum officinarum* L.). Under Guidance Prof. Dr. Ir. Sudiarso, MS. and Dr. Ir. Titiek Islami, MS.

Sugarcane is a crop that produce sugar, which is a commodity that can be consumed directly. Sugar composition in Indonesia has been increased gradually based on the population. The matter is that the increasing of sugar composition has not been followed by domestic production. Some causes of low sugar production are seed preparation and the low quality of sugarcane. Seed Preparation using gradual garden needs more time. While the availability of sugarcane land makes sugarcane seedling increasingly difficult, so that simple seed preparation technique is required. Besides seed preparation, seed quality is affected the sugar production. The simple seed preparation technique that can produce high quality seed without using gradual garden is Bud Chip seedling technique. Bud chip is a vegetative seedling technique using one bud obtained from the usage of a drilling machine. Bud chip seed derived from tissue culture seeds that have been planted first at Kebun Bibit Pokok (KBP). One of affecting factors towards seedling result using bud chip is the planting media. Appropriate mixed planting media composition using bud chip can affect the growth of sugarcane seed. The way of using mixed planting media is a first step that drives the increase of sugar productivity.

The purpose of this study were to gain growth interaction because media composition and varieties treatment and to get the right composition for seeds growth through bud chip technique of three sugarcane (*Saccharum officinarum* L.) varieties. The proposed hypothesis was a different media composition should be influence sugarcane varieties growth through bud chip technique. This research has been conducted on May up to July 2012 at Sugar Research Centre PT. Perkebunan Nusantara X (Persero), Plosokidul Village, Plosoklaten District, Kediri Regency. With a height for about 220 meters above the sea with Inceptisol soil types, temperature ranges 20 – 25 °C, rain fall 144 mm/month and soil pH 6,5 – 7. Used tools were hoe, chisel mortisier, Hot Water Treatment (HWT), Leaf Area Meter (LAM), steam planting media, tray seedling, ruler, stationery, camera and caliper. Used matters were sugarcane seed varieties PSJK 922, VMC 76 – 16 and PS 862, soil, sand, compost blotong, fungicide copper oxide 56%, Insecticide tiametoksam 350 gr/l and ZPT Na-orthonitrofenol 2 g/l + Na-paranitrofenol 3 g/l + Na 2,4 dinitrofenol 0,5 g/l + Na 5 nitroguaiakol 1 g/l. Methods used in this research was Randomized Factorial Block Design with the first factor as followed, varieties (1) PSJK 922 (V_1), (2) PS 862 and (3) VMC 76 – 16, while the second factor were: (1) 10% soil, 20% sand, 70% compost (M_1), (2) 70% soil, 10% sand, 20% compost (M_2), and the third factor as followed (3) 30% soil, 70% sand, 10% compost (M_3). Observations were made on 9 example plants which were include 4

plants non-destructive and 18 plants destructive observation. Non destructive observation include stem diameter, plant height, number of internode, number of leaves, while destructive observation include leaf area, total fresh plant weight, and total dry plant weight that observed every 10 days started at 10 hst to 90 hst. The observation datas were analyzed using kinds analysis (F test) at 5% level. If lied a significant difference ($F_{count} > F_{table 5\%}$), then followed by BNT test at 5% level.

Interaction between planting media composition and varieties occur in plant height, number of leaves, number of internode, leaves area and total dry plant weight. The interaction between genotype and environment showed that the influence of planting media composition (soil : compost : sand) and varieties of plant growth was exist. Varieties differences affect on plant height, stem diameter, leaves area, number of internode, total fresh plant weight, and total dry plant weight. While growing media has more effect on stem diameter, number of internode, leaves areas, total fresh plan height, and total dry plant height. Sugarcane seedling media with composition as followed; soil: sand : compost (10%: 20%: 70%) produce average stem diameter, number of stem segments, leaves area, total fresh plan height, and total dry plant height are more higher than the media composition as followed soil: sand : compost (70% : 20% : 10%) and (20% : 10% : 70%), PSJK 922 varieties be able planted on media as followed soil : sand : compost (10%: 20%: 70%). The seedling using Bud Chip technique should be planted on media with composition as followed soil: sand : compost (10%: 20%: 70%) and used PSJK 922 varieties.

