Productivity Test Soil Latosol Reddish brown Landslide Vulnerability Through Study Influence Dosage Cow Manure and Intensity of Soil Cultivasion Against Growth and Sweet Corn Results

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1. INTRODUCTION

Sweet corn is well known to the people of Indonesia because it has a sweeter taste than the ordinary corn, because in the carbohydrate of the seeds contain sugar production (glucose and fructose), sucrose, polysaccharide and starch. The sugar content in the sweet corn endosperm is 5-6% and the starch content is 10-11% while in the maize it is only 2-3%, so it is preferable than ordinary corn and need to increase the yield. Harjadi (1983) mentions that one of the main factors that need to be improved to achieve maximum yield of the plant is to increase soil productivity, so that the requirement of plant nutrients is always controlled, by improving cultivation techniques such as soil cultivation and addition of soil organic matter through fertilization. The purpose of this study: (a). Determine the effect of soil processing intensity on growth and best yield of sweet corn, (b). Determine the effect of cow dung manure dosage on growth and best result of sweet corn. (c) Determine the effect of interaction between intensity of soil processing and dosage of cow dung manure to growth and the best result from sweet corn.

2. RESEARCH METHODOLOGY

The research is a field research with basic design Randomized Block Design (RBD) which consists of two factors and 3 replications. Factors are: Factor 1 is the intensity of soil processing (P) consists of 3 levels: P0 without tillage, P1 soil processing once, and P2 soil processing twice. Factor II is dosage of cow dung manure (D) consists of 4 levels: D0 without cow dung manure, D1 dosage of cow dung manure 5 ton / ha. D3 of cow dung manure dose 10 ton / ha and D3 of cow dung manure dose 15 ton / ha. Research materials: Sweet corn Super Sweet seed varieties, cow dung manure, pesticides (Furadan 3G, Azodrin 15 WSC and Dithane M-45. Tools used: hoe, sickle, tugal, bucket, hand sprayer, roll meter, rope, calipers, scales, ovens, nameplate and stationery. The place of the Research is in Koripan Village, Matesih Sub-district, Karanganyar Regency, Central Java from May 2017 to August 2017 on the soil of reddish brown Latosol. Observations were made on a sample plant of 5 plants per plot determined randomly. The observation parameters used: (1) Plant height (cm), (2) Number of cobs per plant, (3) Diameter of cob with its leather (Klobot) per plant (cm), (4) Diameter of cobs without klobot per plant (cm), (5) Length of cob weighted per plant (cm), (6) Length of cob without klobot per plant (cm), (7) Fresh weight of stover (g), (8) Dry weight stover (g), and (9) Weight of cob per plot (kg)

3. RESULTS AND DISCUSSION.

a. Influence of Dosage Dump Fertilizer Dosage. Based on statistical analysis (5% BNJ Test) in tables 1 & 4 show that dosage of cow manure manifest significantly increased the weight of cob

per plot, but no increase in other parameters (plant height (cm), Number of cob per plant, cob weight per hectare per plant (cm), cob diameter without klobot per plant (cm), cob weight per hectare per plant (cm), cob extension without klobot per plant (cm), fresh weight stover (g) and dry weight of stover (g)). The highest yield was obtained at a dose of 15 tons / ha (D3), although since the dose of 10 tons / ha there has been a significant increase. This condition indicates that with the addition of dose from 5 ton / ha to 10 ton / ha the result is still not maximal even increased until dosage 15 ton / ha still increase the result, so if increased again still enable the result keep increasing

Table 1. Result of BNJ Test of 5% level Influence of Dosage of Cow Manure on crops of sweet corn

Dose	High	Σ Cobs	Diameter claved	Diameter Unclaved	Pnjg tongkol claved	Pnjg tongkol Unclaved	Brt sgr bgks	Brt krg brgks	Brt tongkol per plot
D_0	140,12a	1,511a	4,596a	4,038a	24,067a	18,916a	733,333a	122,840a	5,723a
D_1	147,10a	1,600a	4,704a	4,143a	24,828a	28,626a	684,533a	125,027a	7,592a
D2	158,41a	1,489a	4,473a	4,224a	24,372a	18,516a	860,222a	140,173a	8,747c
D3	153,22a	1,556a	4,830a	4,199a	26,239a	19,850a	716,667a	131,646a	10,515d

Description: The 5% BNJ Test Result followed by the same letter between treatments on each of the above parameters shows no significant difference.

This is due to the availability of nutrients (especially N) in manure and productivity of N (Landslide Latosol Rawan Landslide) or by photosynthesis process is still not able to increase maximum yield. Furthermore, it is caused by: (1) Nutrient content (especially N) in cow manure is still not optimally available; (2) The soil nature of Latosol Reddish chocolate which is prone to landslides or high constraints (table 5) resulting in low productivity; except for (3) Inadequate rainfall (Lanina) from May to August 2017 impacts on the process of photosynthesis and respiration, as well as an increase in the supply of nutrients (macro and micro) that play a role to stimulate the generative process as well as increased yield (especially flowering and cob formation). In addition, cow manure plays a role in improving physical and biological fertility (especially granulation, structure, consistency, aeration, porosity, and soil permeability) and chemical properties (especially neutral soil acidity, good nutrient availability, and cation exchange capacity KTK), and saturation of base rose Harjowigeno (1987), stated that plant growth can be influenced by various factors such as climate (sunlight, temperature, air, water) and soil nutrient content such as N, P, K, Ca, Mg and other nutrients, and then clarified Wahyudin et al (2015), that solar light is a source of energy for the process of photosynthesis, as well as the Ministry of Agriculture (2013) explains that soil fertility factor (including the provision of organic fertilizer) is one factor of production that has enough contribution (about 55%) of the success of crop production Photosynthesis is the basic process in plants to produce food n will determine the availability of energy for plant growth and development (Kuyik et al, 2012). Another important factor is superior varieties, because superior varieties have advantages over local varieties such as production, pest resistance, disease and weeds, fertilizer response, thus increasing production in terms of quantity and quality (Syafrudin et al, 2012).

Furthermore (2002) describes the provision of organic fertilizer, in addition

to increasing the production and productivity of plants, will also improve the ability of soil storing water, infiltration capacity and soil drainage. Adianto (1993) explains that manure is an organic fertilizer derived from animal waste containing elements of nitrogen (N), phosphorus (P), and potassium (K) important role for the growth and development of plants. Further, Las and Setyorini (2010) confirmed that cow manure and sheep manure contain elements of N, K, P and Ca.

b. Influence Intensity of Soil Processing. Based on statistical analysis (5% BNJ Test) in tables 2 & 4 show that the increase of soil intensity significantly increased the length of the cob weighing, the diameter of the cob without weight, the diameter of the cob weighted and the weight of cob per plot. The highest yield was obtained on the intensity of soil treatment 2 times (P2) with the weight of cobs 8,385 kg per plot. This is caused by the processing of soil 2 times the result increases. Means with soil treatment 2 times (P2) will further stimulate the increase in the content and the availability of nutrients higher than the soil treatment once (P1) or without soil treatment (P0). So that if the increase again soil processing, possible results will continue to increase

Table 2. BNJ Test Result 5% Level Effect of Soil Processing Intensity on sweet corn crop yield

Proses Land	High claved	Σ Cobs Unclaved	Diameter claved	Diameter Unclaved	Long Cob claved	Long Cob Unclaved	Weight Dry stover	Weight Dry stover	Weight Cob l per plo
P0	148,54a	1,533a	4,745a	4,140ab	25,938b	19,746a	770,667a	123,570a	8,245ab
P1	148,00a	1,500a	4,538a	4,035a	25,029ab	18,741a	794,783a	132,657a	7,799a
P2	152,60a	1,550a	4,873a	4,277b	23,663a	14,445a	680,617a	123,537ha	8,385b

Description: The 5% BNJ test result followed by the same letter between treatments on each of the above parameters shows no significant difference

This is due to (1) the occurrence of increased nutrient content and availability by intensification of soil preparation (increasing aeration, drainage, and oxidation processes) can ultimately spur increased yields (especially the diameter of cob weight and cob weight per plot); (2). Adequate rainfall in May to August 2017, has an impact on the improvement of photosynthesis and respiration processes, as well as an increase in the content and supply of nutrients (macro and micro). It is still possible to increase the diameter of cob weight and weight of cob per plot, in addition to increasing soil fertility (neutral soil acidity, as well as increases in nutrient content and availability, as well as cation exchange capacity and basic saturation. Rosmarkam and Yuwono (2002) states, phosphorus is a compound making up plant tissues such as nucleic acids, phospholipids, and fitin. This element of P is necessary for the formation of primordial flowers and plant organs for reproduction (fruits, seeds, tuna). Similarly, other factors (environmental factors) such as temperature, humidity and air conditioning in the soil affect the work of microorganisms in the soil. High temperatures with low humidity can support the work of microorganisms in the soil (Adrianto, 2009). Means with the existence of soil processing (environmental factors) done before planting and watering with the aim of maintaining soil moisture, will also stimulate the activity of microorganisms in accelerating decomposition of soil organic matter as well as to weathering the soil. Good soil preparation and organic soil feeding can increase growth and sweet corn production, as reported

by Yassi and Rezkiani (2011) that maximum soil treatment provides better growth and production potential for sweet corn and green beans.

c. Effect of Intensity Interaction of Soil Processing and Dosage of Cow Manure. Based on the results of statistical analysis (5% BNJ Test) on tables 3 & 4 shows that the interaction of soil cultivation intensity and dosage of cow manure can significantly increase the weight of the weighted cob diameter and the weight of cob per plot, while the other parameter did not increase significantly. This is due to (1) the increase of nutrient content and the availability of nutrients by the process of increasing the soil treatment (increasing aeration, drainage, and oxidation process) can finally increase yield (especially the diameter of cob weight and weight of cob per plot); (2). Adequate rainfall in May to August 2017, has an impact on the improvement of photosynthesis and respiration processes, as well as an increase in nutrient content and supply. It is still possible to increase the diameter of cob weight and weight of cob per plot, in addition to increasing soil fertility (neutral soil acidity, as well as increases in nutrient content and availability, as well as cation exchange capacity and basic saturation. Adrianto (2009) asserts, environmental factors such as temperature, humidity and air conditioning in the soil affect the work of microorganisms in the soil. High temperatures with low humidity can support the working of microorganisms in the soil. So that with the soil treatment done before planting and watering with the aim of maintaining soil moisture, will also stimulate the activity of microorganisms in accelerating decomposition of soil organic matter as well as to weathering the soil. Good soil preparation and organic soil feeding can increase growth and sweet corn production, as reported by Yassi and Rezkiani (2011) that the maximum soil processors provide better growth and production potential for sweet corn and green beans. Furthermore, Sutanto (2002) explained about the giving of organic fertilizer, in addition to increase the production and productivity of the plant, also will improve the ability of soil storing water, infiltration capacity and soil drainage.

d. Influence Against Soil Productivity And Plant Productivity. Based on the results of the variance test followed by BNJ Test 5% level and Score Ranking Tests on Land Characteristics and Plants (table 1, 2, 3, 4, 5 & 6) showed that: First, the intensity of soil treatment (I) on all parameters observed showed significant differences to very significant in Cobs with klobot diameter, diameter of cobber without klobot, cobbled weights and heavy cobs per plot, but no significant differences to plant height, number of cobs, length of cob without klobot, fresh weight of stover and dry weight of stover; Second, the dosage of cow manure manifest significantly increased the weight of cob per plot, but no increase in other parameters (plant height (cm), number of cob per plant, cob weight per hectare per plant (cm), cob diameter without klobot per plant cm), length of cob weighted per plant (cm), length of cob without klobot per plant (cm), fresh weight of stover (g), and dry weight of stover (g)); Third, the interaction of soil cultivation intensity and dosage of cow manure can significantly increase the diameter of cob weighted and cob weight per plot, while the other parameters did not increase significantly; Fourth, the productivity of cob yield per hectare per hectare (10.52 kg) is still higher than its productivity potential of 10.36 kg of the same varity (Super Sweet Varieties) from

the description of the Department of Agriculture (2000). This is due to (1) the occurrence of increased nutrients and the availability of nutrients by the process of increasing the soil treatment (increasing aeration, drainage, and oxidation process) can ultimately increase yield; (2). Inadequate rainfall in May to August 2017, has an impact on improving the process of photo synthesis and respiration, as well as an increase in nutrient content and supply; (3) the effect of the fertilizer dosage which is only slightly due in particular to the period of generative development (weight increase of tuna); (4) The availability of nutrients (especially N) in manure and productivity of N (Landslide Landslide) and by photosynthesis process have not been able to increase maximum yield. Further due to: (a) Nutrient content (especially N) in cow manure is still not optimal; (b) Soil properties of Latosol Reddish or highly hazardous prone (Table 5) so low productivity; except for (c) Inadequate rainfall (Lanina) from May to August 2017 impacts on the process of photosynthesis and respiration, as well as an increase in the supply of nutrients (macro and micro) that serve to stimulate the generative process as well as increased yield (especially flowering and cob formation). In addition, cow manure plays a role in improving physical and biological fertility (especially granulation, structure, consistency, aeration, porosity, and soil permeability) and chemical properties (especially neutral soil acidity, good nutrient availability, and cation exchange capacity (5) Another important factor is superior varieties, because superior varieties have advantages over local varieties such as production, pest resistance, disease and weeds, fertilizer response, which will increase production in terms of quantity and quality (Syafrudin et al., 2012).

Table 3. BNJ Test Results 5% level Influence Interaction Intensity of Soil Processing and Dosage Cattle Fertilizer Against Sweet Corn Crops

Proses Land	Dosie	High claved	Σ Cobs Unclaved	Diameter claved	Diameter Unclaved	Long Cob claved	Long Cob Unclaved	Weight Fresh stover	Weihght Dry stover	Weight Cob per plot
P0	D0	139,37a	1,733a	4,532ab	3,979a	24,567a	19,800ab	710,667a	728,190ab	5,668a
	P1	140,43a	1,467a	4,438a	3,946a	24,883a	18,817a	686,000a	170,777a	7,945b
	D2	159,45a	1,535a	4,913ab	4,334a	26,133a	18,550a	030,000a	141,806a	8,886c
	D3	154,88a	1,400a	5,098b	4,303a	28,167b	21,817a	756,000a	113,511a	10,931d
P1	D0	137,17a	1,400a	4,542a	3,908a	23,883a	17,900a	720,667a	118,511a	5,666a
	P1	149,09a	1,533a	4,609ab	4,135a	25,850a	18,850a	796,667a	130,144a	7,411b
	D2	150,37a	1,333a	4,435a	4,057a	24,300a	19,267a	807,333a	136,704a	8,620c
	D3	135,35a	1,867a	4,565a	4,041a	26,133ab	18,950a	854,467a	145,268a	9,475a
P2	D0	143,81a	1,400a	4,713a	4,226a	23,800a	19.050a	768,667a	121,820a	5,835
	P1	151,77a	1,8001a	5,064a	4,347a	23,750a	18.217a	570,933a	134,160a	7,870b
	D2	165,41a	1,600a	4,882ab	4,282a	22,683a	17,733a	843,333a	142,008a	8,735b
	D3	153,22a	1,400a	4,828ab	4,254a	24,417a	18,783a	539,533a	136,150a	11,141c

Description: The 5% BNJ test result followed by the same letter between treatments on each of the above parameters shows no significant difference

Table 4 Summary of Statistical Analysis About Mean, Fingerprint and BNJ 5% on the Effect of Treatment on Sweet Corn Crops

Parameter	Statistical Test Result								
	Processing Intensity Land (I)			Dose Cow Manure (D)			Interaction I & D		
	TT	TR	Sig	TT	TR	Sig	TT	TR	Sig

Plant height	150,11	147,50	NS	155,08	140,12	NS	165,41	137,17	NS
Number of Casks	2	1	NS	2	1	NS	2	1	NS
Diameter of the cob claved	4,90	4,54	**	4,83	4,59	NS	6,00	4,44	*
Diameter of the cob Unclaved	4,04	4,45	*	4,36	4,04	NS	4,35	31,00	NS
Length the cob claved	25,94	23,66	*	26,24	24,07	NS	28,17	22,83	NS
Long the Cob Unclaved	19,59	18,22	NS	19,61	18,38	NS	81,82	17,73	NS
Weight Fresh stover	680,62	669,79	NS	733,34	560,22	NS	930,00	539,53	NS
Weight Dry stover	133,59	123,57	NS	140,24	122,84	NS	145,27	110,78	NS
Weight Cob per plot	8,40	7.80	**	10.52	5,73	**	11,14	5,67	*

Description: TT = Highest; TR = Lowest; Sig = Significance; NS = Non Significance; * = Significance; ** = Very Significance;

Thus, it is possible to increase the diameter of the cobs weights, the diameter of the cob without clove The length of the cob weighted and the weight of cob per plot, in addition to increasing soil fertility (neutral acidity of the soil, as well as increases in nutrient content and availability, as well as cation exchange capacity and saturation base). In the end it can be said, with the above treatments can increase the productivity of the land even a little (so still in the category of productivity levels remain low). Seriminawati et al. (2005) suggests that good growth is supported by sufficient nutrient uptake resulting in the resulting photosynthate increased and stored in storage tissue, thus affecting the growth and growth of plant parts which will ultimately increase the yield of maize significantly. The formation of cob is an important step in influencing the yield of corn crops

Table 5: Geomorphology, Physical, Soil Chemistry and Determination of Avalanche Landscreen Category Reddish Chocolate Latosol Land in Koripan Village, Kec. Metesih, Karanganyar District**.**

Geomorphology Criteria & Constraints			Physical Criteria & Constraints			Chemical Criteria & Constraints			Catagory[2]
Identity Elements	Real	Score[1]	Identity Elements	Real	Score[1]	Identity Elements	Real	Score[1]	
Oldeman's climate type	B	8	Texture	Clay loam	8	Soil reaction	acid	6	
							Al	2	
CH (mm/th)	2000-3000	8	Structure	Crumbs, lumps	6	KTK	Low	8	
Relief	Ramps, wavy, bumpy	8	Drainage	Moderately-rather quickly	8	KB	Very low	8	
Slope (%)	5-20	6	Permeabilitas	Medium	8	C-org	Low	8	
Rock Type	Andesit	10	Consistency	Loud	8	N total	Low	8	
Land use	Moor	8	Color	Sour red-brown	6	P2O5	Low	8	
Excavation	Intensif	10	Rooting	Mikro	6	K+	Low	8	
Vegetasi	Banana, jack-fruit, lamtoro, Vegetable..	8				Ca+	Low	8	
Potential landslide	Almost Every year	10				Mg+	Low	8	
Type landslide	Slump	10				Organic Materials	Low	8	
			Soil processing	Good	2	Organic fertilizer	Good	2	
			organic fertilizer	Good	2				
Σ Score		86	Σ Score		54	Σ Score		82	
RESULT OF SWEET CORN			**High**	**THE PRODUCTIVITY OF CORN MAIZE**			**High**	**8**	

SOILPRODUCTIVITY

SOIL LAND SLIDE

MEDIUM wITH

Obstacles Somewhat High (=7.42)

Description

[1]) Score Level of Insecurity: 2-4-6-8-10 = Very Low-Low-Moderate-High-Very High. Total Score = 86 + 54 + 82 + 8 = 230, so the average score = 230/31 = 7.42 (rather high).

[2]) Soil Category (Reddish Chocolate Latosol) ie: Avalanche Avalanche = Mean Score Vulnerability = (7.42 = Agk high). So considering these constraints, soil productivity can still be categorized is (but is temporary / very limited). so it is easy to degrade / degenerate the fertility level (low soil productivity).

Based on Suhendar (2011) quote on Adisarwanto (1999) research result, that the formation of cobs that are less or imperfect can be caused by the lack of P element.

Table 6: Geomorphology, Physical, Soil Chemistry and Biomass Element Result as well as Determination of Category of Occurrence / Constraints for Sweet Corn Results On Red Chocolate Latosol Land in Koripan Village, Kec. Matesih.

Geomorphology Criteria			Physical Criteria			Chemical Criteria			Criterion Results			Cata gory
Identity Elements	Real	Score[1]	Identity Elements	Real	Score[1]	Identity Elements	Real	Score[1]	Identity Elements	Real	Score[1]	
Oldeman's climate type	B	8	Tecsture	Clay loam	8	Soil Reaction	Acid, somewhat neutral	6	Plant height	Low	8	
							AL	2				
CH (mm/th)	2000-3000	8	Structure	Remah, gumpal	6	KTK	Low	8	Σ cob claved	Low	8	
Relief	Ramps, wavy, bumpy	8	Drainase	Moderately-rather quickly	8	KB	Low	8	Diameter cob claved	Very high	2	
Slope (%)	5-20	6	Permea bilitas	Medium	8	C-org	Low	8	Diameter cob unclaved	Tinggi	4	
Type of rock	Andesit	10	Consist encysi	Loud	8	N total	Low	8	Long cob claved	High	4	
Land use	Moor	8	Color	Reddish brown	6	P_2O5	Low	8	Long cob unclaved	Low	8	
Excavation	Intensif	10	Perakaran	Micro Macro, a bitt	6	K+	Low	8	Fresh weight of stover	Low	8	
Vegetation	Banana, lamtoro jackfruit	8				Ca+	Low	8	Dry Weight stover	Low	8	
Potential landslide	Almost Every year	10				Mg+	Low	8	Weight cobs per plot	Very high	2	
Type of landslide	Slump	10				Organic Materials	Low	8	Light	Medium	6	
									Humidity	High	8	
Σ Scose		86	ΣScore		50	Σ Score		80	Σ Score		64	
LAND LATOSOL BROWN LOWER OF LDSLIDE HOSPITALITY						**LAND PRODUCTIVITY OF BROWN LATOSOL LANDSLIDE**				Medium	**<8**	

THE PRODUCTIVITY OF CORN MAIZE

HIGH

WITH HIGH CONSTRUCTIONS

(7.33 OR 6-8)*)

Description :

1) According to criteria:

Productivity of soil Latosol Reddish brown: medium (<8) = 6.

Sweet corn crop productivity: high = 8.

[2]) According to the calculation of research results:

Scores of Resistance Levels / Constraints: 2-4-6-8-10 = Very Low-Low-Moderate-High-Very High

Total Score = 86 + 50 + 80 +64 + 6 = 286 so the average score = 286/39 = 7.33 (moderately high or medium-high).

*) Sweet corn category: very high (table 4) = 8 but Average Constraint Score 7.33 (<8 = moderate to high). So given the constraints, the productivity of sweet corn can still be categorized as very high (but temporary / very limited) so easily degraded / degenerated viability of production.

Then, Gardner and Pearce (1991) stated that the P element is an important component of compounds for energy transfer (ATP and nucleoprotein), genetic information (RNA and DNA), cell membranes, and phosphoproteins. This is also confirmed by Poerwowidodo (1993) that P element deficiency makes plants unable to reproduce normally. Incomplete cob formation can lead to small cobs, irregular sequence of seeds and less seeds. Pracaya (2008) asserted visually the element P deficiency can be seen from the symptoms of dark blue to purplish leaves. According to Agrita (2012) quotation in Soepardi (1983), nutrient deficiency can cause growth and crop development to be disturbed, affecting seed size to be smaller resulting in weight of 100 seeds and weight of dry kiln seeds per plant. Further Agrita (2012) states, that the weight component of 100 seeds can also be influenced by genotype and environmental factors. N nutrient deficiency in vegetative periods can affect the ability of plants to absorb P elements (Pracaya, 2008). Suhendar (2011) added that the P function for plants is very useful for seed formation and can stimulate root growth that plays an important role in water and nutrient absorption itself. Element P is needed from the beginning of growth, ie in the vegetative phase even to the generative phase. Related to that Adrianto (2009) states, environmental factors such as temperature, humidity and air conditioning in the soil affect the work of microorganisms in the soil. High temperatures with low humidity can support the working of microorganisms in the soil. So that with the soil treatment done before planting and watering with the aim of maintaining soil moisture, will also stimulate the activity of microorganisms in accelerating decomposition of soil organic matter as well as to weathering the soil. Good soil preparation and organic soil feeding can increase the growth and production of sweet corn, as reported by Yassi and Rezkiani (2011) that the maximum soil agroforestry provides better growth and production potential for sweet corn and green beans

4. Conclusions and Recommendations

a. Conclusion

1). The dosage of cow manure manifest significantly increased the weight of cob per plot, but no increase in other parameters (length of cob weighted, unswripened cob diameter, weighted cob diameter, plant height, number of cobs, unopened cobs weight, fresh weight and weight dried stover).

2). The intensity of soil tillage (I) showed a significant difference to realization of the Cobs with klobot Diameter parameter, the diameter of the skeleton without klobot, the length of the weighted and heavy casks, but not significantly different to the height of the plant, the number of cobs, the length of the cob without klobot, fresh weight of stover and dry weight of stover.

3). The interaction of soil cultivation intensity and dose of cow manure significantly increased the diameter of the cob weighted and the weight of cob per plot, while there was no significant increase in the other parameters (cob length weighing, unswriped cob diameter, plant height, cob number, without klobot, fresh weight of stover and dry weight of stover).

4). The intensity of soil tillage (I) showed a significant difference to realization of the diameter of the weighted culvert, the diameter of the skeleton without klobot, the length of the weighted and heavy casks, but not significantly different to the height of the plant, the number of cobs, the length of

the cob without klobot, fresh weight of stover and dry weight of stover.

b). Recommendations

1. Reddish brown Latosol soil Reduced vulnerable landslide in Koripan Village, Matesih District Karanganyar regency can not be used for mainly Annual Monoculture Plant Farm, so it can only for limited annual crop farming with multiple cropping system (type, area and time) of trunked fruits and branched firmly with a tight canopy while maintaining technical and vegetative soil conservation efforts.
2. Do not be made for residential areas.
3. Suitable for protected conservation areas.

Thank-you note

Thank you to the Promotion Team who until now finished later on the instructions and guidance, namely: 1.Prof. Dr. Ir. H. Suntoro, M.S. (Promoter); 2.Prof. Dr. Ir. H. Slamet Minardi, M.P (Co Promotor 1); 3.Dr. Sc. Agr. Rahayu, S.P., M.P (Co Promotor 2).

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