Effect of mulch and nutrients on rhizome characters in transplanted ginger

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Introduction

The conventional propagation method using ginger rhizome being slow, a suitable method of raising ginger seed material in portrays has been devised by Indian Institute of Spices Research and Kerala Agricultural University. The advantages of this technology are production of healthy uniform planting materials and reduction in seed rhizome quantity which eventually reduced cost on rhizomes.The experiment was carried out in the Instructional Farm, College of Agriculture, Vellayani during April 2016 to January 2017 . The ginger variety used was Karthika. Field experiment was laid out in split plot design with four levels of mulches in main plots and fertilizer levels in sub plots with four replications. .Two nodded rhizome bits of ginger cultivar was raised in protrays were transplanted at 55 days in beds taken in the interspaces of coconut.

Materials & Methods

.The experiment was carried out during April 2016 to January 2017

Main plot treatments (Mulching)

1. M_1 - Organic mulch @ 30t ha $^{-1}$
2. M_2 - Organic mulch @ 15 t ha^{-1}
3. M_3 - Organic mulch @ 7.5 t ha^{-1}
4. M_4 – Plastic mulch

Sub plot: Fertilizers

1. T_1 - 75:50:50 kg ha^{-1}
2. T_2 - 150: 100: 100 kg ha^{-1}

3. T_3 - T_1 + foliar application of 19:19:19 @ 0.5% applied at 1, 3, 4 months after transplanting.

4. T_4 - 100:75:75 kg ha^{-1} + foliar application of 19:19:19 @ 0.5% at 1, 3, 4 months after transplanting

Rhizome thickness

Rhizome thickness was measured using micrometer and mean expressed in centimeter.

Rhizome spread

The horizondal width of the rhizomes was measured using a scale and mean value in centimeter

Results

Effect of mulch and fertilizer on rhizome thickness

Treatments	4th month	6th month	Harvest
(Mulches) M_1	1.46	1.58	1.69
M_2	1.39	1.51	1.58
M_3	1.35	1.48	1.62
M_4	1.39	1.52	1.59
CD	0.038	0.029	0.018
(Fertilizers) T_1	1.34	1.54	1.62
T_2	1.53	1.59	1.67
T_3	1.33	1.41	1.58
T_4	1.40	1.54	1.60
CD	0.028	0.017	0.015
(Interaction) m_1t_1	1.33	1.54	1.64
m_1t_2	1.61	1.74	1.79
m_1t_3	1.33	1.43	1.63
m_1t_4	1.40	1.66	1.79
m_2t_1	1.34	1.55	1.62
m_2t_2	1.53	1.63	1.71
m_2t_3	1.30	1.40	1.53
m_2t_4	1.34	1.44	1.47
m_3t_1	1.25	1.54	1.62
m_3t_2	1.47	1.54	1.66
m_3t_3	1.26	1.33	1.55
m_3t_4	1.44	1.54	1.64
m_4t_1	1.43	1.55	1.61
m_4t_2	1.52	1.57	1.62
m_4t_3	1.46	1.50	1.64
m_4t_4	1.42	1.46	1.52
CD	0.046	0.024	0.020

Effect of mulches and nutrients on Rhizome spread (cm)

Treatments	4th month	6th month	Harvest
(Mulches) M_1	9.63	11.01	13.31
M_2	8.58	10.33	12.29
M_3	7.64	9.96	12.43
M_4	7.86	9.69	11.66
CD	0.188	0.216	0.182
(Fertilizers) T_1	8.12	9.85	12.42
T_2	8.68	10.84	13.08
T_3	8.39	10.15	11.39
T_4	8.31	10.16	12.79
CD	0.18	0.162	0.169
(Interaction) m_1t_1	9.18	10.33	11.50
m_1t_2	10.35	13.15	14.30
m_1t_3	9.65	10.33	14.23
m_1t_4	9.33	10.25	13.23
m_2t_1	9.45	10.43	12.25
m_2t_2	8.40	10.18	13.35
m_2t_3	8.18	10.30	11.18
m_2t_4	8.30	10.43	12.38
m_3t_1	7.62	10.55	12.38
m_3t_2	7.23	8.48	11.53
m_3t_3	7.55	10.38	13.58
m_3t_4	8.18	10.45	12.23
m_4t_1	8.48	9.30	9.43
m_4t_2	7.20	10.43	11.58
m_4t_3	8.30	9.53	13.35
m_4t_4	7.45	9.50	12.28

Conclusions

The resumulching @ 30 t ha $^{-1}$(half at planting and half 2 months after transplanting) along 150:100:100 kg NPK ha^{-1} and basal application of 30 t ha^{-1} of farm yard manure can be recommended for higherrhizome characters .Its of the study indicated that for ginger transplants intercropped in coconut garden,

Field overview

Rhizome of recommended treatment

Reference

Abraham, E., John, J., and Pillai, S. P. 2016. Allelopathic effect of leaf loppings of homestead trees on ginger (*Zingiber officinale* Roscoe). *J. Trop. Agri*. 54 (1) : 60-65.