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Assessing Dry Matter Accumulation in Different Parts of Maize Hybrid in Different Amounts of Nitrogen and Amino- acid

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Abstract

A factorial experiment was randomly performed in Karaj seed and seedling research institute in 2008 and 2009 to study the effect of different nitrogen and amino acid amounts on dry weight of two maize seronital cultivars KSC700 and KSC704 and a rapidly – growing KSC 500. pure nitrogen at 3 levels of 0,115, and 230 kg and amino acid sprinkling at 3 levels of 0,4 and 5 lit in hectare were contemplated in the stages of fertilization (inoculation). dough and physical maturation, the shrubs were harvested and dry weight of leaf, stem, corn, and total shrubbery in hectare was noted. Dry matter increased in plants by using amino acid. more use of nitrogen has increased it, too. so by 230 kg nitrogen in hectare, the dry matter of leaf, stem, corn and total shrubbery was more than use of 115 kg. mean comparing of jointly use of nitrogen and amino acid in different amounts showed that it had the most yield in view of dry matter production in leaf, stem, corn and total shrubbery in all three stages. different reactions were observed in studied hybrid to fertilizer for increasing dry weight, so fertilizer using on dry weight increment of KSC700 and KSC704 hybrid was more effective than KSC500.

1. Introduction

Nitrogen is a widespread dement in nature. Its amount differs much in parts of plant but its mean for dry matter is about 2%. The amount also differs on various plants considering their yield [1]. Nitrogen is the main element for making dry matter and one of the main components contained in main molecules like proteins, nucleic acid, some hormones, chlorophyll and other kinds of primal and peripheral element in plants [2].

Nitrogen is an essential element of all enzymes and for plant growth. 1.6 weight of proteins (most are enzymes) is nitrogen and a chief part is nucleic acid. We see plenty more in leaves especially in enzymes of photosynthesis that may reach even to 4% of dry weight, since nitrogen absorption, dry matter production and grain yield correlated [3]. According to [4] in observing growth of maize hybrid KSC704 in effect of nitrogen's different amount fount out that is influenced by nitrogen in all stages of growth and when nitrogen fertilizer increased, dry matter accumulated more in corn. [5] reported that the amount of nitrogen has clear and obvious effect on yield of dry, moist matter and foodstuff quality. most yield of dry matter (22/9 ton in ha) was got of 200 kg nitrogen in ha compared to 15.5 ton in instance sort.

In sustained agriculture systems to use biological fertilizers is very important for high production and soil consistent productivity [6]. The term biological fertilizer is not only called to organic matters output from dung, muck, manure, green manure and so on, but also small bacterial and fungal creatures especially those which help plants growth (PGPR) and what they produce such as amino acids are of main organic fertilizers [7]. These groups of amino acids and bacteria can originally and plentifully cause mineral increment in soil and overcome disease causes, moreover, they influence on plant yield by producing hormones that regulate plant growth [8].

These matters, considering their effects on growth, are titled yield stimulus [9]. Amino acids should be absorbed by plant through leaf and branch in different stage of growing and according to its need to have high plant yield. they re absorbed through leaf follicles and its amount accords with environmental temperature. They influence on plants physiological activities directly or indirectly. We can put them at plants disposal by mixing to soil and improves its quality and nourishing matter to be accumulated around root. they may be sprinkled or scattered in liquid form on leaf and branch, so protein will be synthesized [10]. Main part of nitrated compounds are amino acids in plant solution and they are important for metabolism. Amino acids are structural components of proteins. properties of proteins, chemically or structurally, are dependent on bases of amino acid that exist in them. Proteins are consist of amino acids that coalesce in peptide to each other, there are two amino acids in one peptide, three in tripeptide, and about 3-10 in an oligopeptide that are coalesced in peptidyl form there are many amino acids in polypeptides [11]. the effect of organic, biological fertilizers and yeast on growth, yield and quality of soybean showed that using organic fertilizer is only a sort of cure, and it leaves more dry weight for each plant. Biological fertilizer could replace to 50% for chemicals recommended for plants without reduction of dry and green foodstuff. This condition might be related to growth multiplier by organic fertilizer and acceptable established atmospheric nitrogen, in addition. Thesereactions save more nutrients for needed enzymes for composing different parts and as a result better growth total physiological status of plants cleared by dry weight, states positive response to use of organic fertilizer [12].
The purpose of research was to study the effect of nitrogen fertilizer and amino acid on dry weight of different parts of maize cultivars.

2. Material and Methods

To study the effect of nitrogen and amino acid, a factorial experiment was randomly performed in 3 repetitions in Karaj Institute. Karaj is located in south of Alborz mountains range with 50° Lo and $57''$ E - 35° La, and $48''$ N and $1312/5^{m}$ S.L.H. Itsclimate is semidry with loamy sandy soil. Cure distance was plant line with the distance of 75^{cm} and 14^{m} length. The sample was taken in $0-30^{cm}$ depth of soil & then sent to lab of the institute of soil and water research organization of agriculture and natural resources of Tehran to be experimented and recommended to determine the amount of nitroge, phosphor and potassium by experts (Table -1).

Table1- the result of field soil

year of Testing	Depth	Total N] %	[P (AV.)] p.p.m.	[K(AV.)] p.p.m.	% (Clay)	% (Silt)	(Sand) %
2008	0-30	0.07	11.8	312	28.4	38.4	33.2
2009		0.1	4	169.2	29.4	37.4	33.2

According to Table -2 , soil fertilized during two – year experiment . nitrogen from urea, phosphor from super triple phosphate and potassium from potash solphate sources were used.

Table2-Amount of recommendation fertilizer, based on soil analysis by the institute of soil and mater research organization of agriculture and natural recourses.

Year	Used amount of fertilizer (kg in ha)		
	nitrogen	phosphate	potassium
2008	230	92	0
2009	230	92	100

Maize cultivate included rapidly – growing hybrid KSC 500 and two seronitals KSC700 and KSC704 hybrida. All were provided by research sector of maize, seed and seedling.

Nitrogen fertilization was carried out in four times at 3 levels of 0,115 and 230 kg in ha each year. 1.4 before planting fertilized to soil with phosphor and potash and plowed the soil and mixed well with it. Another 1.4 in the stage of growing (6-8) leaf, 1.4 were blooming and the last 1/4 during the stages of dough and pasty.
Amino acid at 3 levels of 0-4 and lit in ha sprinkled in four times. the first time, two weeks after planting (2-3 leaf), the third when blooming, and the last between pasty and dough stages sprinkled on leaves.
The field plowed and Eradican herbicide (Eradican (EpTc, S-ethyl dipropyl carbamothioate plos R-25788) in the amount of 1.8 kg in ha was equally fertile to soil before growing, and after planting, it was weeded two times. Irrigation was directed from the original canal to each part on mound. and finally flowing water got out of farm separately. to weigh dry weight of the parts on or above soil (stem, leaf , corn and total shrub) chosen (3 bush), the samples dried out in 72h in a 80° oven and then were weighed , firstly . using SAS, statistical accounting, especially data variance analysis of related properties was performed. mean comparison was done by Duncan s multiple Range Test.

3. Results and discussion

Leaf dry weight analysis results showed significance of all studied properties except the effect of year in inoculation stage, mutual effect of amino acid and cultivar, year mutual effect, amino acid and cultivar in dough stage and year effect, nitrogen mutual effect, amino acid and cultivar, mutual effect of year and nitrogen and mutual effect of year and cultivar in the stage of physiological maturation (Table.3).

Table3- Analysis the mixed variance dry weight of leaf in hectare.

Source	DF	Mean square		
		Inoculation stage	Dough stage	Maturation stage
Year	1	15499.318ns	14435818.23**	38665.985ns
Rep(year)	4	259669.992	518784.15	154508.449
Nitrogen	2	993906.616**	1566319.36**	979520.885**
Amino acid	2	601220.458**	1142054.67**	587497.442**
Cultivar	2	570972.693**	2121166.61**	418701.556**
Nitrogen*Amino acid	4	474391.262**	1038193.29**	379586.980 **
Nitrogen*Cultivar	4	111329.641**	130807.73**	90661.703**
Amino acid*Cultivar	4	14711.712**	43664.39ns	31118.933*
Nitrogen*Amino acid*Cultivar	8	19582.219*	111663.21**	12310.285ns
year*Nitrogen	2	225278.624**	74502.67*	150879.551ns
year*Amino acid	2	241175.563**	153552.95**	84211.336**
year*Cultivar	2	44422.787**	461911.77**	1394.487ns
year*Nitrogen*Amino acid	4	100196.074**	78993.19**	71526.785**
year*Nitrogen*Cultivar	4	52174.388**	457047.41**	29105.613*
year*Amino acid*Cultivar	4	33819.785**	22793.54ns	29554.570*
year*Nitrogen*Amino acid*Cultivar	8	78870.546**	207274.65**	84248.836**
Error	104	7805.73	18732.44	9298.371
Coef var(CV)	-	4.126767	5.111554	4.916456

** Significant at the level of 1%. * Significant at the level of 5%. ns, has not Significant.

The most leaf dry weight was for using amino acid (5 lit in ha) in inoculation and dough stages, and the least was for not to use amino acid in the same stages. Using pure nitrogen (230kg in ha) without amino acid had more leaf dry weight in the stage of growing compared to 115 kg nitrogen without amino acid in the same stage. point use of nitrogen and amino acid. increased leaf dry weight, so in steroidal cultivars KSC700 and KSC704, more dry weight was got compared to KSC500 (Table.4).
The results of variance analysis of dry weight of stem showed significance of all studied properties but year effect in inoculation stage , mutual effect of year and nitrogen fertilizer , mutual effect of year and amino acid , mutual effect of year , nitrogen and acid amino , mutual effect of year , nitrogen and cultivar and mutual effect of year, amino acid and cultivar and mutual effect of nitrogen , amino acid and cultivar in the stage of doughing, mutual effect of year , amino acid and cultivar in physiological maturation stage that has no significance . (Table.5)

Table 4- Comparing the average affection of nitrogen fertilizer, Amino acid and cultivar on dry weight of leaf in hect

Nitrogen*Amino acid*Cultivar			Mean(kg/ha)		
Nitrogen(Kg/ha)	Amino acid(Lit/ha)	Cultivar	Inoculation stage	Dough stage	Maturation stage
0	0	Ksc500	1458.90(l)	1735.48(n)	1340.17(i)
		Ksc700	1734.14(k)	2135.92(m)	1553.76(h)
		Ksc704	1819.48(kj)	2170.13(ml)	1621.84(hg)
	4	Ksc500	2048.99(ih)	2323.15(kl)	1709.13(g)
		Ksc700	2089.24(gih)	2644.93(hfeg)	1890.74(f)
		Ksc704	2181.74(egdf)	2667.68(hfedgi)	2024.37(bdac)
	5	Ksc500	1908.42(j)	2446.33(kj)	1884.98(f)
		Ksc700	2119.26(gifh)	2750.68(fedg)	1943.76(fdec)
		Ksc704	2225.00(ebdfc)	2814.87(bedc)	2042.48(bac)
115	0	Ksc500	2082.84(gih)	2490.67(ji)	1894.58(fe)
		Ksc700	2144.87(egfh)	2760.25(fedc)	2019.91(bdec)
		Ksc704	2285.01(bdac)	2833.82(bdc)	2066.11(bac)
	4	Ksc500	2024.51(i)	2545.37(hj)	1910.24(fde)
		Ksc700	2160.00(egfh)	2763.88(fedc)	2038.90(bdac)
		Ksc704	2288.27(bdac)	2836.55(bdc)	2075.00(bac)
	5	Ksc500	2074.97(gih)	2573.45(hgji)	1942.96(fdec)
		Ksc700	2178.60(egdf)	2827.72(bdc)	2061.66(bac)
		Ksc704	2305.66(bac)	2934.43(bac)	2106.00(ba)
230	0	Ksc500	2190.66(egdfc)	2611.98(hfedgi)	1945.79(fdec)
		Ksc700	2263.81(ebdac)	2951.55(ba)	2078.80(ba)
		Ksc704	2341.78(ba)	2989.90(ba)	2111.04(ba)
	4	Ksc500	2280.23(bdac)	2632.25(hfg)	2036.73(bdac)
		Ksc700	2287.19(bdac)	3016.62(a)	2116.20(ba)
		Ksc704	2362.20(a)	3022.15(a)	2125.12(ba)
	5	Ksc500	2246.85(ebdac)	2691.53(hfedg)	2111.53(ba)
		Ksc700	2337.96(ba)	3047.35(a)	2147.46(ba)
		Ksc704	2363.78(a)	3076.30(a)	2156.72(a)

Means that are not the same at least one letter have no significant difference statistically (Duncan test)

Table5- Analysis the mixed variance dry weight of stem in hectar.

Source	DF	Mean square		
		Inoculation stage	Dough stage	Maturation stage
Year	1	31402645.03**	745732.08ns	1810488572**
Rep(year)	4	1129423.78	2754393.00	134262830
Nitrogen	2	9205868.57 *	21475029.43**	351931973**
Amino acid	2	3190833.69**	5764311.99**	139241386**
Cultivar	2	5952302.50**	6453004.00**	722621913**
Nitrogen*Amino acid	4	2446369.38**	9543629.89**	77714584**
Nitrogen*Cultivar	4	114714.86*	582974.42**	24595607**
Amino acid*Cultivar	4	430486.11**	681101.46**	22662231**
Nitrogen*Amino acid*Cultivar	8	322874.62**	1652024.23**	25243370**
year*Nitrogen	2	3907570.46**	50468.13ns	183929648**
year*Amino acid	2	841034.90**	166398.38ns	50806770**
year*Cultivar	2	193162.56*	574731.63*	129894290**
year*Nitrogen*Amino acid	4	311236.37**	119034.52ns	59950692**
year*Nitrogen*Cultivar	4	225147.16**	186748.49ns	25484404**
year*Amino acid*Cultivar	4	287693.58**	190897.32ns	1477456ns
year*Nitrogen*Amino acid*Cultivar	8	558529.63**	180434.62ns	20676034**
Error	104	41049.3	131471.7	5330514
Coef var(CV)	-	3.748327	5.265657	4.766109

** Significant at the level of 1%. * Significant at the level of 5%. ns, has not Significant.

Using amino acid (5 lit in ha) had the most stem dry weight of stem in the same stage. to use 230kg nitrogen without amino acid in the same stages had more dry weight of stem in each bush compared to use of 115 kg in ha without amino acid. The steroidal cultivars KSC704 and KSC700 had more stem dry weight in hectare compared to KSC500 when using and amino acid, jointly. (Table.6).

Table 6 Comparing the average affection of nitrogen fertilizer, Amino acid and cultivar on dry weight of stem in hect

Nitrogen*Amino acid*Cultivar			Mean (kg/ha)		
Nitrogen(Kg/ha)	Amino acid(Lit/ha)	Cultivar	Inoculation stage	Dough stage	Maturation stage
0	0	Ksc500	4122.9(k)	4417.80(m)	3687.80(l)
		Ksc700	4779.2(j)	5149.50(l)	4478.40(jik)
		Ksc704	4801.6(j)	5745.70(k)	4715.00(jihg)
	4	Ksc500	4254.0(k)	6033.30(kj)	3915.40(l)
		Ksc700	5297.0(gfh)	6396.90(ij)	4698.40(jihg)
		Ksc704	4979.3(ji)	6594.30(ihg)	4786.10(fihg)
	5	Ksc500	4927.4(ji)	6434.50(ij)	4364.40(k)
		Ksc700	5297.4(gfh)	6451.40(ij)	4744.20(jihg)
		Ksc704	5185.2(gih)	6674.90(ihg)	4918.10(fehg)
115	0	Ksc500	4931.9(ji)	6478.10(ij)	4467.50(jk)
		Ksc700	5451.8(ef)	6649.90(ihg)	4924.60(fehg)
		Ksc704	5354.5(gf)	7207.30(ef)	4998.40(fedg)
	4	Ksc500	5036.7(jih)	6539.00(ih)	4525.30(jik)
		Ksc700	5684.9(ed)	6761.60(ihfg)	5078.90(fedc)
		Ksc704	5599.6(e)	7414.30(edc)	5103.30(edc)
	5	Ksc500	5073.9(ih)	6989.60(ehfg)	453530(jik)
		Ksc700	6040.8(bac)	7361.80(ed)	5171.10(edc)
		Ksc704	5865.5(dc)	7424.10(edc)	5225.60(bedc)
230	0	Ksc500	5157.4(gih)	7053.40(efg)	4599.70(jik)
		Ksc700	6066.7(bac)	7815.00(bdc)	5198.20(bedc)
		Ksc704	5876.1(dc)	7927.00(ba)	5330.90(bac)
	4	Ksc500	5855.2(dc)	7067.30(efg)	4626.30(jihk)
		Ksc700	6117.9(bac)	7882.10(bac)	5216.80(bedc)
		Ksc704	5975.3(bac)	8036.90(ba)	5486.30(ba)
	5	Ksc500	5895.0(bdc)	7215.30(ef)	5138.00(edc)
		Ksc700	6150.6(ba)	7882.10(bac)	5258.20(bdc)
		Ksc704	6164.1(a)	8317.7(a)	5601.00(a)

Means that are not the same at least one letter has no significant difference statistically (Duncan test)

The analysis of variance of corn dry weight cleared that all studied properties are significant except mutual effect of year and amino acid in the stages of inoculation, dough and physiological maturation (Table.7).
Mean comparing in mutual effect of nitrogen, amino acid and cultivar on dry weight of corn showed that different.
Amounts of fertilizer were differently grouped in view of this property. so by using 5 lit in ha amino acid in the stages of inoculation, dough and physiological maturation, the most corn dry weight, and without fertilizer in the same stages the least corn dry weight was got. comparing 230 kg to 115 kg use of nitrogen without amino acid, leaf dry weight in the same three stages in 230kg was more than 115 kg in hectare. corn dry weight of the steroidal cultivars KSC704 and KSC700 was more than KSC500 by jointly use of nitrogen and amino acid in the same stages (Table.8).
The results of plant dry weight analyzing variance cleared that all properties have significance except mutual effect of year and nitrogen , mutual effect of year and nitrogen , mutual effect of year and amino acid and mutual effect of year , nitrogen and amino acid , mutual effect of year , amino acid and cultivar and mutual effect of year , nitrogen , amino acid and cultivar in inoculation stage, mutual effect of year and amino acid in dough stage and mutual effect of year and amino acid and mutual effect of year and cultivar in maturation stage that have no significance(Table.9).

Table7- Analysis the mixed variance dry weight of corn in hectare.

Source	DF	Mean square		
		Inoculation stage	Dough stage	Maturation stage
Year	1	1424651.55**	3727197.65**	150425761.8**
Rep(year)	4	170896.11	3800104.31	7691801.8
Nitrogen	2	2479800.83**	45649579.07**	125781257.7**
Amino acid	2	458792.64**	6179675.99**	14868512.1**
Cultivar	2	12900959.53**	15480219.64**	24506702.5**
Nitrogen*Amino acid	4	883741.23**	7163133.57**	8543561.7**
Nitrogen*Cultivar	4	281290.19**	954335.41**	2418599.6**
Amino acid*Cultivar	4	422959.95**	2670558.08**	5508916.3**
Nitrogen*Amino acid*Cultivar	8	806605.60**	2260364.13**	4042499.4**
year*Nitrogen	2	49572.86**	9001629.32**	29697501.1**
year*Amino acid	2	3282.65ns	235089.67ns	489720.2ns
year*Cultivar	2	1293616.93**	12967783.03**	2029630.6**
year*Nitrogen*Amino acid	4	214042.50**	2644989.73**	4600579.2**
year*Nitrogen*Cultivar	4	303011.98**	1422759.00**	2861321.3**
year*Amino acid*Cultivar	4	71932.51**	1693370.58**	3272023.4**
year*Nitrogen*Amino acid*Cultivar	8	105611.13**	2328816.68**	3884593.3**
Error	104	5950.85	160758.5	284363.9
Coef var(CV)	-	4.796932	4.325883	4.557065

** Significant at the level of 1%. * Significant at the level of 5%. ns, has not Significant.

Table 8- Comparing the average affection of nitrogen fertilizer, Amino acid and cultivar on dry weight of corn in hectare.

Nitrogen*Amino acid*Cultivar			Mean(kg/ha)		
Nitrogen(Kg/ha)	Amino acid(Lit/ha)	Cultivar	Inoculation stage	Dough stage	Maturation stage
0	0	Ksc500	631.99(m)	6075.1(k)	7483.4(p)
		Ksc700	999.02(k)	8034.7(j)	9166.6(o)
		Ksc704	1470.10(hg)	8340.5(ij)	9266.9(no)
	4	Ksc500	886.47(l)	8286.9(ij)	9877.7(nm)
		Ksc700	1393.02(h)	8651.4(ih)	10128.8(ml)
		Ksc704	1705.29(f)	8789.6(ih)	10684.2(kl)
	5	Ksc500	1031.69(jk)	8302.9(ij)	10685.2(kl)
		Ksc700	1498.33(g)	8331.9(ij)	10758.7(kjl)
		Ksc704	1750.42(f)	9049.5(gh)	11407.3(ji)
115	0	Ksc500	1040.83(jk)	8299.8(ij)	10846.6(kj)
		Ksc700	1792.35(f)	9340.5(gf)	11663.7(hi)
		Ksc704	1921.89(ed)	9477.0(gfe)	12331.8(fdhe)
	4	Ksc500	1049.39(jk)	8278.1(ij)	11282.2(kji)
		Ksc700	1799.93(f)	9484.0(gfe)	11915.4(ghi)
		Ksc704	1951.95(ed)	9846.3(dfe)	12608.7(fde)
	5	Ksc500	1118.73(ji)	9725.5(dfe)	11725.4(ghi)
		Ksc700	1907.61(e)	9938.5(dce)	12417.1(fgde)
		Ksc704	1981.11(ed)	10403.4(bc)	12647.1(fde)
230	0	Ksc500	1165.05(i)	9420.0(gfe)	11824.1(ghi)
		Ksc700	1944.45(ed)	10097.1(dc)	12960.5(cde)
		Ksc704	2185.73(c)	10727.6(ba)	13114.7(cd)
	4	Ksc500	1188.17(i)	8782.4(ih)	11976.9(fghi)
		Ksc700	2017.68(d)	10417.4(bc)	13557.1(cb)
		Ksc704	2192.93(c)	10733.6(ba)	13873.9(b)
	5	Ksc500	1406.21(hg)	9492.2(gfe)	12671.2(fde)
		Ksc700	2629.38(b)	10914.5(ba)	14501.5(a)
		Ksc704	2760.25 (a)	11010.7(a)	14571.5(a)

Means that are not the same at least one letter have no significant difference statistically (Duncan test)

Table9- Analysis the mixed variance dry weight of plant in hectar.

Source	DF	Mean square		
		Inoculation stage	Dough stage	Maturation stage
Year	1	34549830.40**	8063238.3**	290182834.4**
Rep(year)	4	5859115.18	13686692.2**	18585947.1
Nitrogen	2	47699578.20**	124390899.0**	204952610.5**
Amino acid	2	12095153.50**	27465562.9**	36655179.1**
Cultivar	2	24158070.40**	36612827.4**	57360768.7**
Nitrogen*Amino acid	4	20270691.88**	12484894.3**	16546325.2**
Nitrogen*Cultivar	4	1334944.99**	1894346.7**	2684237.5**
Amino acid*Cultivar	4	1643532.31**	2098429.8**	5615111.0**
Nitrogen*Amino acid*Cultivar	8	2315565.41**	3122176.3**	5707733.3**
year*Nitrogen	2	221333.40ns	23155336.9**	53661881.2**
year*Amino acid	2	232507.06ns	519863.8ns	380579.5ns
year*Cultivar	2	5116116.18**	5569878.1**	908329.7ns
year*Nitrogen*Amino acid	4	265651.81ns	3226898.1**	6829837.0**
year*Nitrogen*Cultivar	4	560024.02*	4217146.5**	3232668.6**
year*Amino acid*Cultivar	4	514577.83ns	1325036.5**	4400009.0**
year*Nitrogen*Amino acid*Cultivar	8	889668.45ns	3486091.9**	4555950.1**
Error	104	213641.2	257011.6	391871
Coef var (CV)	-	4.286231	3.005680	3.396398

** Significant at the level of 1%. * Significant at the level of 5%. ns, has not Significant.

Mean comparing of the effect of nitrogen fertilizer, amino acid and cultivar on plants dry weight of bush showed that different amounts of fertilizer were differently grouped in view of this property (**Table 10**).

Table 10-Comparing the average affection of nitrogen fertilizer, Amino acid and cultivar on dry weight of plant in hectare

Nitrogen*Amino acid*Cultivar			Mean(kg/ha)		
Nitrogen(Kg/ha)	Amino acid(Lit/ha)	Cultivar	Inoculation stage	Dough stage	Maturation stage
		Ksc500	6711.3(p)	11657.0(n)	12309.7(m)
	0	Ksc700	7943.1(o)	14589.0(m)	15232.4(l)
		Ksc704	9338.8(n)	14995.6(ml)	15296.8(l)
		Ksc500	9850.6(nm)	15092.6(mkl)	15728.4(l)
0	4	Ksc700	10305.5(lkmj)	15681.2(jk)	16919.3(k)
		Ksc704	10608.1(ikhj)	15790.4(j)	17171.1(jk)
		Ksc500	9919.3(lm)	15235.9(jkl)	16861.9(k)
	5	Ksc700	10539.6(ikhj)	15883.5(ji)	17924.1(jlh)
		Ksc704	10664.2(ikmj)	16779.4(gh)	18215.8(ih)
		Ksc500	10212.1(lkm)	15773.6(j)	17437.3(jik)
	0	Ksc700	10643.8(ikhj)	16949.0(gfh)	18521.5(fgh)
		Ksc704	11110.3(ghf)	17104.5(gf)	19666.2(cde)
		Ksc500	10431.0(likmj)	16438.2(ih)	17827.6(jih)
115	4	Ksc700	11286.3(gf)	17441.5(dfe)	18566.4(fgh)
		Ksc704	11369.7(egf)	17392.2(gfe)	19823.6(cde)
		Ksc500	10491.1(likhj)	16765.8(gh)	18201.4(ih)
	5	Ksc700	11459.2(egdf)	17977.2(dce)	19184.1(fde)
		Ksc704	11686.3(edf)	18070.9(dc)	19899.6(cd)
		Ksc500	10601.0(ikhj)	17567.0(dfe)	18302.0(gh)
	0	Ksc700	11925.7(edc)	18324.8(bc)	19928.5(cd)
		Ksc704	12035.5(bdc)	18824.2(ba)	20085.6(cb)
		Ksc500	10877.6(ighj)	16771.4(gh)	19071.5(fge)
230	4	Ksc700	12316.7(bac)	18375.3(bc)	20735.2(b)
		Ksc704	12409.2(bac)	19332.3(a)	21537.0(a)
		Ksc500	11015.5(igh)	17943.2(dce)	19532.6(cde)
	5	Ksc700	12612.4(ba)	19286.6(a)	21682.6(a)
		Ksc704	12795.0(a)	19362.2(a)	21979.8(a)

Means that are not the same at least one letter has no significant difference statistically (Duncan test)

So using 5 lit of amino acid in hectare took the driest weight of plant in inoculation, dough and maturation stages, and the least weight when it was not used in the same stages. using pure nitrogen (230kg) without amino acid had more dry weight of plant in comparison to using 115 kg in ha. Nitrogen and amino acid joint use had more dry weight of plant in steroidal cultivars of KSC704 and KSC700 compared to rapidly – growing KSC500 (Table -10).

Conclusion

Comparing mean use of amino acid showed that increasing amino acid causes increasing dry matter in plant. amino acid mixed with nitrogen, organic matters that is rapidly absorbed to leaf is biological activator of physiological acts of plant like growth stimulation [10]. Amino acids cause increasing the rate of freeing soil organic matters or humus and causes increasing absorption rate and transmitting of fine nutrients in plants and increasing synthesis of proteins. They also increase the amount of chlorophyll of plant that causes and helps photosynthesis increment and amino acids act as prerequisite matter and activator of hormones and effective causes of growth [13]. Mean comparison about use of nitrogen fertilizer showed that increasing use of nitrogen increases dry matter of plant. So, when they used 230kg of nitrogen, they got more dry matter of leaf, stem, corn and all the shrubbery, compared to 115 kg nitrogen in 1 ha. It has been reported that accumulation progress of dry matter in upper parts like leaf, stem, corn and total dry matter in maize cultivars has increased by nitrogen increment [14-20,4]. By more amount of nitrogen, photosynthetic matters increased in leaf, and stem and as a result accumulated matter increased in upper parts [21]. Dry matter yield reduction by little use of nitrogen has been reported by [17] and [21]. [23] reported that although there are some limits, useable nitrogen increment is much effective for growth and morphological properties. mean different amounts showed that it had the most grade in view of producing dry matter in leaf. stem, corn and all shrub, comparing to the other cure sorts. so by increasing joint use of two fertilizers. dry weight increased, too. Analyzing the results of this research its cleared that dry weight of plant in inoculation, dough and maturation stages in the all of three studied hybrids has increased significantly by used nitrogen fertilizer and amino acid, and it could be effective in yield of dry weight in every bush. so it seems that amino acid increment has censed dry weight increment in maize. this result may also show strengthening correlation of amino acid and nitrogen compound to increase dry weight. therefore, we can conclude that amino acid sprinkling has lead to yield increment of dry weight in every maize bush. organic fertilizers produce organic matters in great amount that could be easily analyzed and they include great amount of nitrogen. biological resources such as organic fertilizer mixed with chemical can lead to soil system provides most nourishing needs of plant and increases the output of nutrient absorption by crops [25-27]. The researched hybrid had different reactions to fertilizer for dry weight increment so that use of fertilizer for wet weight increment was more effective for KSC704 and KSC700 compared with KSC500. And this result is about to be expected because the two hybrid (KSC704 and KSC700) grow later than KSC500, that accords to the result of [28]. Considering the results of this research, joint use of amino acid and nitrogen is very effective in increasing dry weight of leaf, stem , corn and all the shrub of steroidal and rapidly- growing maize hybrid in dough , inoculation and maturation stages on the conditions of the experiment performing.

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