The Effects of Nitrogen Doses on the Seed Yield and Some Agronomic Characteristics of Coriander Cultivars*

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This research was conducted to determine the effect of different nitrogen doses (0, 3, 6, 9, 12 kg N da^{-1}) on the seed yield and some agronomic characteristics of Arslan and Gürbüz coriander cultivars. The experiment was designed in randomized split blocks design with four replications during 2011-2012 growing season in experimental field of Namık Kemal University. Result indicated that Arslan cultivar have higher values for number of umbels per plant, seed yield per plant, harvest index and 1000 seed weight, than Gürbüz cultivar. There were no statistically significant differences between cultivars for plant height, number of seed per umbels and seed yield per decare. When nitrogen doses increased, plant height and seed yield also increased. However, number of umbels per plant, number of seed per umbel, seed yield per plant and 1000 seed weight were not affected by increasing nitrogen doses.

Key Words: Coriander, *Coriandrum sativum* L, Nitrogen doses, Agronomic characteristics

Azotlu Gübre Dozlarının Kişniş Çeşitlerinde Tohum Verimi ve Bazı Agronomik Özellikleri Üzerine Etkisi

Bu araştırma, Arslan ve Gürbüz kişniş çeşitlerinin tohum verimi ve bazı agronomik özellikleri üzerine farklı azot dozlarının (0, 3, 6, 9, 12 kg N da^{-1}) etkisini belirlemek amacıyla yürütülmüştür. Deneme 2011-2012 yetiştirme döneminde Namık Kemal Üniversitesi deneme allanın da bölünmüş parseller deneme deseninde 4 tekrarlamalı olarak kurulmuştur. Araştırma sonucunda Arslan çeşidi bitkide şemsiye sayısı, bitki tohum verimi, hasat indeksi ve 1000 tane ağırlığı bakımından Gürbüz çeşidinden daha yüksek değerlere sahip olmuştur. Çeşitler arasında bitki boyu, şemsiyede tohum sayısı ve dekara tohum verimi bakımından istatistiksel olarak önemli bir farklılık çıkmamıştır. Azot dozunun artması bitki boyunu ve tohum verimini arttırmış, bitkide şemsiye sayısı, şemsiyede tohum sayısı, bitki tohum verimi ve 1000 tane ağırlığı üzerinde ise önemli bir etki yaratmamıştır.

Anahtar Kelimeler: Kişniş, *Coriandrum sativum* L., Azot dozu, Agronomik özellikler

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Introduction

Coriander (*Coriandrum sativum* L.) is an annual and aromatic plant which belongs to *Apiaceae* family. It is an important plant whose various parts have been used in medicine, green leaves have been used as spice and vegetable, its fruits have been used as spice, essential oil has been used in food and cosmetics, fatty oil has been used in a variety of industrial branches (Diederichsen, 1996). Also, coriander oil has antibacterial (Burt, 2004), antioxidant (Wangensteen et al., 2004), anticancerogenic and antimutagenic (Chithra and Leelamma, 2004) properties.

Coriander is one of the most significant medical aromatic plants in the world with production of 300-335 thousand tones and trade volume of 85-100 thousand tonnes (Codex Alimentarius Commission 2015). India, Morocco, Canada, Pakistan, Romania and Russia are the countries which make the most production, while Iran, Turkey, Israel, Burma, China and Thailand are the countries which make less coriander production. India meets nearly 80% of the world's coriander production (Sharma and Singh 2014).

There is less knowledge about the medical and aromatic plants because of medical and aromatic plants are grown on areas much smaller than major crops and producers believe that they can cultivate these plants naturally without need cultural applications (Carrubba, 2009). The quality of herbal material in medical and aromatic plants depend on genotype (Telci et al., 2006a), climate and soil properties (Lenardis et al., 2009) and also cultural applications (Khalid, 2013). Nitrogen is one of the most important nutrient substances that affects yield in medical and aromatic plants (Moosavi et al., 2013). Nitrogen plays an important role in many chemical reactions in

which proteins and enzymes affecting growth and development also take part (Khalid, 2013).

The effect of nitrogen on yield and quality criteria of coriander has been examined by numerous scientists. Mert and Kırıcı (1997) reported that plant height, number of umbel and seed yield are changed with the change of doses of nitrogen while seed number per umbel is not changed; Okut and Yıldırım (2005) found that seed yield and 1000 seed weight are changed by increasing nitrogen doses, while plant height, number of umbel and harvest index is not affected; Tehlan and Thakral (2008) claimed that seed yield is changed by nitrogen doses; Lenardis et al. (2009) reported that plant height, number of umbel, seed yield per plant and seed yield per decare is changed by nitrogen doses; Patel et al. (2013) discussed that plant height, seed number per umbel, seed yield per plant and seed yield per decare are changed by nitrogen doses, whereas harvest index is not changed; Khalid (2013) claimed that plant height, number of umbel, seed yield per plant are changed by nitrogen doses; Moosavi et al. (2013) reported that seed yield is affected by nitrogen doses, but plant height is not affected; Lokhande et al. (2015) found that number of umbel, 1000 seed weight and seed yield are changed by nitrogen doses; Szemplinski and Nowak (2015) reported that seed yield per plant and 1000 seed weight are not affected by chancing nitrogen doses.

This research was to evaluate the influence of different nitrogen doses on the seed yield and some agronomic characteristics of Arslan and Gürbüz coriander cultivars.

Material and Methods

Environmental Characteristics

The research was performed during 2011-2012 growing season in Tekirdağ province (40°59'N, 27°34'E, elevation 10 m) located in the Marmara Region of Turkey. The experimental area has typically along with Mediterranean and Black Sea climate with lover temperatures in winter and hot, dry in summer. Average temperature was 12.85 ºC, total precipitation was 501.2 mm, and proportional moisture was 84.67% of the experimental area. According to the average of long years, total precipitation dropped by 24 mm, and there was not any difference in the average temperature values while proportional moisture values had an increase of 5.73 %. The soil had clayed-loamy, neutral and weak in organic substance, rich in phosphorous and potassium and had a low proportion of lime and salinity.

Experimental Design and Measurement

Arslan and Gürbüz coriander cultivars were used as experimental material. Field experiment was set up in randomized split blocks design with four replications. Coriander cultivars (Aslan and Gürbüz) were allotted to main plots while nitrogen doses (0, 3, 6, 9, 12 kg N da^{-1}) were allotted to subplots. Each plot consisted of 8 rows in 5 m long. The row spacing was 30 cm. Sowing was done by hand on 2nd November 2011. In the study, the half of doses of nitrogen at sowing as 20-20-0 compound fertilizer and the rest of their as 33 % ammonium nitrate fertilizer at the beginning of flowering stage with a calculation of pure substance were applied.

Harvest was performed at ripening stage of coriander plants on 26 June 2012. On the 10 sample plants which are randomly selected from each plot, plant height, the first branch height, number of umbels per plant, number of seed per umbel, seed yield per plant and harvest index were determined. Seeds obtained from each plot were used to determine thousand seed weight and seed yield per decare.

Statistical Analysis

Data obtained from this study were analyzed according to randomized split block design by using MSTAT 3.00/EM computer packet program. The differences among means were determined by LSD $_{(P\leq 0.05)}$ test (Düzgüneş et al. 1987)

Results and Discussion

The results of variance analysis are given in Table 1. Differences between the cultivars were statistically significant for the first branch height, number of umbels per plant, seed yield per plant, harvest index and thousand seed weight. There were statistically significant differences among the nitrogen doses for plant height, the first branch height, seed yield per decare and harvest index. The effect of cultivar x nitrogen doses interaction on the first branch height, seed yield per decare and harvest index was statistically significant (Table 1).

Plant Height

In the study, differences between cultivar means for plant height were found as statistically not significant (Table 1).

Table 1. Probability (F) values of the investigated characteristics

	Variance Source			
	Replications	**Cultivars**	**Nitrogen Doses**	**Cultivars × Nitrogen Doses**
Plant Height (cm)	8.124^{ns}	0.710^{ns}	16.790**	0.953^{ns}
First Branch Height (cm)	5.519^{ns}	65.000**	9.658**	8.329**
Number of Umbels Per Plant	3.279^{ns}	195.578**	0.717^{ns}	0.756^{ns}
Number of Seed Per Umbels	0.295^{ns}	2.210^{ns}	0.441^{ns}	0.880^{ns}
Seed Yield Per Plant (g)	1.703^{ns}	85.063**	1.489^{ns}	0.772^{ns}
Seed Yield Per Decare (kg da^{-1})	0.709^{ns}	1.188^{ns}	194.364**	62.723**
Harvest Index (%)	3.373^{ns}	442.666**	5.534**	81.421**
Thousand Seed Weight (g)	2.441^{ns}	75.676**	1.921^{ns}	1.088^{ns}

*significant at p<0.05 probability level, ** significant at p<0.01 probability level ns: not significant

Plant height was measured as 100.90 cm in Arslan cultivar and 102.10 cm in Gürbüz cultivar. The values of plant height obtained from nitrogen doses varied from 90.20 to 109.4 cm. While the shortest plant height was obtained from the application of 0 kg da^{-1} pure nitrogen doses, the highest plant height was obtained from 12 kg da^{-1} pure nitrogen doses. It was followed by the application of 9 kg da^{-1} pure nitrogen doses (104.80 cm) in the same statistical group. In the study, plant height increased by increasing nitrogen doses. This state can be explained as the fact that the increasing nitrogen doses increases the meristematic cell number and thus spurs vegetative development (Lawlor, 2002). The effect of nitrogen on increasing plant height in coriander has been traced by most scholars (Mert and Kırıcı 1997; Lenardis et al., 2000; Khalid, 2013; Patel et al., 2013; Lokhande et al., 2015). On the other hand, some researchers reported that plant height of coriander is not affected by nitrogen (Okut and Yıldırım 2005; Moosavi et al 2013). In the study, cultivar × nitrogen doses interactions was not statistically significant for plant height, and it varied from 87.80 and 111.30 cm (Table 2).

The first branch height

Differences between mean values of cultivar, nitrogen doses and cultivar x nitrogen doses interaction were found to be statistically significant at the level of 0.01 for the first branch height (Table 1). The first branch height was measured as 7.70 cm in Arslan cultivar while it was measured 10.40 cm in Gürbüz cultivar. This difference observed between cultivars can be explained by looking at values of plant height that can affect the first branch height. It was not statistically significant, but the plant height of Gürbüz cultivar can be seen to be higher than that of Arslan cultivars in Table 2. The values of the first branch height obtained from the application of nitrogen doses changed between 7.30 and 10.60 cm. While the lowest first branch height was obtained from the application of 0 kg da^{-1} pure nitrogen, the highest one was obtained from the application of 9 kg da^{-1} nitrogen doses. The first branch height increased until the application of 9 kg da^{-1} nitrogen dose and then it decreased. The first branch height obtained from cultivar × nitrogen doses interaction changed between 6.50 and 13.70 (Table 2). The lowest first branch height was obtained from the application of 0 kg da^{-1} pure nitrogen doses of Arslan cultivar whereas the highest one was obtained from the application of 9 kg da^{-1} nitrogen doses of Gürbüz cultivar.

Number of Umbels Per Plant

There were statistically significant differences among cultivars for number of umbels per plant (Table 1). While number of umbels per plant was counted as 24.80 in Arslan cultivar, it was counted as 18.70 in Gürbüz cultivar. This significant difference between cultivars can be attributed to the fact that cultivars belong to different varieties. Also, these findings show similarity with those of Uzun et al. (2010) who claim that there is significant difference between different coriander genotypes in terms of number of umbels per plant. Although it was not statistically significant, number of umbels per plant obtained from the

application of nitrogen doses changed between 20.10 and 23.30. The lowest number of umbels per plant was counted in the application of 9 kg da^{-1} pure nitrogen doses, the highest number of umbels per plant was counted in the application of 3 kg da^{-1} pure nitrogen doses. While these findings are similar to those of Okut and Yıldırım (2005) who discuss that the increase of nitrogen doses does not change number of umbel per plant coriander in a considerable way, they are not similar to those of Mert and Kırıcı (1997); Lenardis et al., (2009); Patel et al., (2013); Khalid, (2013); Lokhande et al., (2015). who claim that number of umbel per plant in coriander changes with the increase of nitrogen doses. The numbers of umbels per plant in cultivar × nitrogen doses interaction changed between 16.50 and 27.10 (Table 2).

Number of Seed Per Umbels

The effect of cultivars, nitrogen doses and interaction of cultivar x nitrogen doses interaction on seed per umbels was not significant statistically (Table 1). The number of seed per umbels was counted as 28.80 in Arslan cultivar while it was counted as 27.50 in Gürbüz cultivar (Table 2). The values of number of seed per umbels obtained from the application of nitrogen doses changed between 27.40 and 29.20. The lowest number of seed per umbels was obtained from the application of 6 kg da^{-1} pure nitrogen while the highest one was measured from the application of 12 da^{-1} pure nitrogen. While the findings are not similar to those of Patel et al. (2013) who report that different nitrogen doses affected the number of seed per umbels in coriander whereas they are similar to those of Mert and Kırıcı (1997) who argue that different doses of nitrogen do not change it. As shown in Table 2, the number of seed per umbels varied from 25.40 to 30.00 in cultivar × nitrogen doses interaction. While the lowest number of seed per umbels was obtained from the application of 6 kg da^{-1} pure nitrogen in Gürbüz cultivar, the highest one counted in the application of 12 kg da^{-1} pure nitrogen of the same cultivar.

Seed Yield Per Plant

In the research, differences between cultivars for seed yield per plant were found statistically significant at the level of 0.01 (Table 1). While seed yield per plant was measured 10.10 g in Arslan cultivar, it was found 5.80 g in Gürbüz cultivar. In the light of findings obtained, difference between two cultivars was found to be quite remarkable. This state can result from the fact that Arslan cultivar belongs to coriander variety of coarse grain whereas Gürbüz cultivar belongs to coriander variety of fine grain. The effect of nitrogen doses on seed yield per plant was not statistically significant, and they changed between 7.50 and 8.90 g. The lowest seed yield per plant was obtained from the application of 0 and 9 kg da^{-1} pure nitrogen while the highest seed yield per plant was obtained from the application of 6 kg da^{-1} pure nitrogen. In the study, it was observed that nitrogen doses did not influence values of number of umbels per plant, number of seeds per umbels and one thousand seeds in a significant way. While these findings obtained are not similar to those of Patel et al. (2013) who argue that nitrogen doses change seed yield per plant, they are similar to those of Szemplinski and Nowak (2015) who report that nitrogen doses do not influence seed yield per plant. Differences between cultivar × nitrogen doses interaction were not found to be statistically significant for seed yield per plant, and it varied from 5.50 to 11.80 g (Table 2). The lowest seed yield per plant was obtained from the application of 9 kg da^{-1} pure nitrogen in Gürbüz cultivar while the highest seed yield was obtained from the application of 6 kg da^{-1} pure nitrogen in Arslan cultivar.

Seed Yield Per Decare

In the research, difference between cultivars for seed yield was not statistically significant (Table 1). However, seed yield obtained from Aslan cultivar (123.70 kg da^{-1}) was the higher than Gürbüz cultivar (121.30 kg da^{-1}). The effect of nitrogen doses on seed yield per decare was found statistically significant at the level of 0.01 (Table 1). Seed yield obtained from the application of nitrogen doses changed between 98.20 and 146.70 kg da^{-1}. In the study, seed yield per decare was increased by increasing nitrogen doses. While the lowest seed yield was obtained from the application of 0 kg da^{-1} pure nitrogen, the highest one was obtained from the application of 12 kg da^{-1} pure nitrogen. The effect of pure nitrogen doses in terms of seed yield on cultivars were seen to be different. A constant increase was observed until the application of 12 kg da^{-1} pure nitrogen doses in Arslan cultivar, and this state revealed that higher nitrogen doses for Arslan cultivars were necessary to be applied in the next experiments. Any statistical difference was not found between the applications of 6, 9

and 12 kg da^{-1} of pure nitrogen doses in Gürbüz cultivar (Table 2). The effect of nitrogen on increasing seed yield can be shown in its key role in many metabolic actions such as aminoacids, chlorophylls, coenzymes, enzymes, proteins, purines and pyrimidines and the fact that this state affects seed yield by increasing biological parts (Marschner, 2002). The effect of nitrogen on increasing seed yield has been also stated by various researchers. Mert and Kırıcı, (1997); Lokhande et al., (2015) obtained the highest seed yield in coriander from the application of 6 kg N da^{-1} pure nitrogen, Okut and Yıldırım (2005); Tehlan and Thakral (2008) obtained the highest seed yield per decare in coriander from the application of 9 kg da^{-1} pure nitrogen, and Lenardis et al., (2009) obtained the highest seed yield per coriander from the application of 7.5 kg da^{-1} pure nitrogen. In the study, cultivar × nitrogen doses interaction in terms of seed yield was found as significant at the level of 0.01. The average seed yield per decare changed between 92.70 and 164.20 kg da^{-1}. The lowest seed yield was obtained from the application of 0 kg da^{-1} pure nitrogen doses of Arslan cultivar whereas the highest yield was determined in the application of 12 kg da^{-1} pure nitrogen of the same cultivars. In the light of these findings, Arslan cultivar reacted to nitrogen doses more positively than Gürbüz cultivar.

Harvest Index (%)

In the research, differences between averages of cultivar, nitrogen doses and cultivar × nitrogen doses interaction were found to be statistically significant at the level of 0.01 (Table 1). The average harvest index was determined as 33.20% in Arslan cultivar whereas it was found as 28.50% in Gürbüz cultivar. These results attained can be explained with values of seed yield that are directly connected with harvest index. As can be seen in Table 2, seed yield of Arslan cultivar was the higher than that of Gürbüz cultivar. Values of harvest index obtained from the application nitrogen doses changed between 28.80% and 32.90%. While the lowest harvest index was obtained from the application of 0 kg da^{-1}, the highest one was reached in the application of 6 kg N da^{-1} pure nitrogen doses (Table 2). These results can be explained by evaluating two parameters that determine harvest index. Although seed yield increased to the application of 12 kg da^{-1} pure nitrogen doses, the highest harvest index was calculated from the application of 6 kg da^{-1} pure nitrogen doses. In this situation, values of biological yield might have increased higher than seed yield after the application of 6 kg da^{-1} pure nitrogen doses. These findings do not show parallels with those of Okut and Yıldırım (2005), Patel et al., (2013) who report that change in dose of nitrogen does not influence harvest index in coriander in an important way. Values of harvest index obtained from of cultivar × nitrogen doses interaction changed between 23.50% and 39.10% (Table 2). The lowest harvest index was obtained from the application of 3 kg da^{-1} pure nitrogen doses in Gürbüz cultivar while the highest one was obtained from the application of 6 kg da^{-1} pure nitrogen doses in Arslan cultivar.

Thousand Seed Weight

In our study, differences between cultivars for thousand seed weight were found as statistically significant at the level of 0.01 (Table 1). The average thousand seed weight was measured as 15.60 g in Arslan cultivar while it was 12.80 g in Gürbüz cultivar. This significant difference between cultivars can be resulted from variety difference because the most significant difference between varieties is the size of seed this difference was put forward in the study of Telci et al. (2006b). Differences between average nitrogen doses were not found to be statistically significant, and thousand seed weight obtained changed between 13.70 and 14.90 g. whereas the lowest thousand seed weight was obtained from the application of 0 kg da^{-1} pure nitrogen doses, the highest one was measured in the application of 12 kg da^{-1} pure nitrogen doses (Table 2). The reason why there was not any significant difference between nitrogen doses can be that interval of efflorescence and ripening is short in vegetation periods of plants, nutrient elements needs at this stage of plants is low (Kazemeini et al., 2010). These findings are not similar to those of Okut and Yıldırım (2005); Patel et al., (2013); Lokhande et al., (2015) who argue that change of nitrogen doses in coriander changes seed weight while they are similar to those of Szemplinski and Nowak (2015) who report that nitrogen does not cause any significant change. The values of thousand seed weight obtained from cultivar × nitrogen doses interaction varied from 12.20 to 15.80 g (Table 2). The lowest thousand seed weight was obtained from the application of 6 kg da^{-1} pure nitrogen doses in Gürbüz cultivar while the highest one was obtained from the application of 12 kg da^{-1} pure nitrogen in Arslan cultivar.

Table 2. Means values and significance groups for plant height, first branch height, number of umbels per plant, number of seed per umbels, seed yield per plant, seed yield per decare, harvest index and 1000 seed weight.

Cultivars	**Plant Height (cm)**					
	Nitrogen Doses (kg da^{-1})					
	0	3	6	9	12	Ort.
Arslan	92.50	98.90	101.40	104.10	107.50	100.90
Gürbüz	87.80	101.00	104.70	105.60	111.30	102.10
Mean	90.20 c	100.00 b	103.00 b	104.80 ab	109.40 a	101.50
LSD $_{(P\leq0.05)}$		Cultivars: ns	Nitrogen Doses: 5.59		Cultivars × Nitrogen Doses: ns	
	The First Branch Height (cm)					
	Nitrogen Doses (kg/da^{-1})					
	0	3	6	9	12	Ort.
Arslan	6.50 e	8.10 cde	6.60 de	7.50 de	9.70 bc	7.70 b
Gürbüz	8.20 cd	9.30 bc	10.70 b	13.70 a	10.10 b	10.40 a
Mean	7.30 c	8.70 b	8.70 b	10.60 a	9.90 a	9.00
LSD$_{(P\leq0.05)}$		Cultivars: 1.078	Nitrogen Doses: 1.191		Cultivars × Nitrogen Doses: 1.684	
	Number of Umbels Per Plant (No)					
	Nitrogen Doses (kg/da^{-1})					
	0	3	6	9	12	Ort.
Arslan	23.40	27.10	26.20	23.00	24.20	24.80 a
Gürbüz	18.50	19.40	16.50	17.30	21.70	18.70 b
Mean	21.00	23.30	21.40	20.10	23.00	21.70
LSD$_{(P\leq0.05)}$		Cutivars: 1.386	Nitrogen Doses: ns		Cultivars × Nitrogen Doses: ns	
	Number of Seed Per Umbels (No)					
	Nitrogen Doses (kg da^{-1})					
	0	3	6	9	12	Ort.
Arslan	27.90	29.00	29.50	29.00	28.40	28.80
Gürbüz	27.10	27.90	25.40	27.30	30.00	27.50
Mean	27.50	28.50	27.40	28.10	29.20	28.10
LSD$_{(P\leq0.05)}$		Cultivars: ns	Nitrogen Doses: ns		Cultivars × Nitrogen Doses: ns	
	Seed Yield Per Plant (g)					
	Nitrogen Doses (kg da^{-1})					
	0	3	6	9	12	Ort.
Arslan	9.40	10.50	11.80	9.50	9.50	10.10 a
Gürbüz	5.60	5.90	6.00	5.50	5.90	5.80 b
Mean	7.50	8.20	8.90	7.50	7.70	8.00
LSD$_{(P\leq0.05)}$		Cultivars: 1.502	Nitrogen Doses: ns		Cultivars × Nitrogen Doses: ns	
	Seed Yield Per Decare (kg da^{-1})					
	Nitrogen Doses (kg da^{-1})					
	0	3	6	9	12	Ort.
Arslan	92.70 f	98.00 ef	113.70 d	149.70 b	164.20 a	123.70
Gürbüz	103.70 e	114.70 d	129.20 c	129.70 c	129.20 c	121.30
Mean	98.20 e	106.30 d	121.50 c	139.70 b	146.70 a	122.50
LSD$_{(P\leq0.05)}$		Cultivars: ns	Nitrogen Doses: 4.360		Cultivars × Nitrogen Doses: 6.166	
	Harvest Index (%)					
	Nitrogen Doses (kg da^{-1})					
	0	3	6	9	12	Ort.
Arslan	34.00 b	39.00 a	39.10 a	27.90 c	26.20 c	33.20 a
Gürbüz	23.60 d	23.50 d	26.70 c	33.50 b	35.10 b	28.50 b
Mean	28.80 c	32.30 ab	32.90 a	30.70 b	30.60 b	30.90
LSD$_{(P\leq0.05)}$		Cultivars: 0.722	Nitrogen Doses: 1.809		Cultivars × Nitrogen Doses: 2.558	
	Thousand Seed Weight (g)					
	Nitrogen Doses(kg da^{-1})					
	0	3	6	9	12	Ort.
Arslan	15.10	15.60	15.70	15.60	15.80	15.60 a
Gürbüz	12.30	12.30	12.20	13.30	14.10	12.80 b
Mean	13.70	14.00	14.00	14.40	14.90	14.20
LSD$_{(P\leq0.05)}$		Cultivars: 1.005	Nitrogen Doses: ns		Cultivars× Nitrogen Doses: ns	

LSD: Least Significant Difference, ns: not significant

Conclusion

In this study which was conducted to determine the effect of different nitrogen doses (0, 3, 6, 9, 12 kg da^{-1} pure nitrogen) on seed yield per decare and some agronomic characteristics of Arslan and Gürbüz coriander cultivars., It was found that plant height and seed yield per decare increased significantly with the increase of nitrogen doses. In the research, it was observed that a constant increase in nitrogen doses in seed yield per decare while there was not any significant difference in the applications of 6, 9 and 12 kg da^{-1} pure nitrogen in Gürbüz cultivars. In the light of these findings, it can be said that higher nitrogen doses than 12 kg da^{-1} should be tried for Arslan cultivars while the use of 6 kg da^{-1} pure nitrogen doses for Gürbüz cultivars can be sufficient under Tekirdağ ecological conditions.

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