

DeDication

To my moTher

To my faTher

To all my sisters

And

All my brothers

El sadig

2016

Acknowledgements

Acknowledgements to AIIA who help me to present this work, in this form.

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ELSADiG

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Abstract

This study was conducted in off-season 2015 at the Experimental Farm of Shambat Research station, Agriculture Research Corporation, Khartoum, Sudan, to investigate the effect of large and medium set sizes (2-3cm and 1-2 cm in diameter, respectively) of onion variety Baftaim (S) and two chemical fertilizer (Urea and NPK) in addition to organic fertilizer (Elkhaseeb) and their combinations (Urea + Elkhaseeb and NPK+ Elkhaseeb) .The experimental units were in complete randomized block design arranged in split plots with three replications. The vegetative growth was evaluated as plant height, number of leaves and leaf length, and the yield and quality as total, marketable and unmarketable yield, percentage of doubling and bolting bulbs and other bulb characteristics (bulb diameter and length, neck diameter, number of rings, total soluble solids and dry matter). The results reflected that the vegetative growth was not affected by the set size or single fertilizers (Urea, NPK or Elkhaseeb alone). However, the highest vegetative growth was obtained by the combinations of organic and chemical fertilizers. The medium set size gave the highest total and marketable bulb yield and the lowest percentage of bolting bulbs. Application of organic fertilizer alone or in combination with mineral fertilizers recorded the highest total and marketable yield and quality (low percentage of double and bolting bulbs and high total soluble solids and

dry matter); especially with the medium set size. Further studies for optimum fertilizer rates are required.

المستخلص

اجريت هذه الدراسة في موسم الخريف 2015 بالمزرعة التجريبية لمحطة بحوث شمبات، هيئة البحوث الزراعية، الخرطوم، السودان، لاختبار تأثير حجم بصيالات كبيرة ومتوسطة (قطرها 3-2 سم و 1-2 سم على التوالي) لصنف البصل بافطيم (S) وسمادين كيميائيين (يوريا + NPK) وسماد عضوي (الخصيب) وتوافيقهم (يوريا + الخصيب و NPK+الخصيب). كانت الوحدات التجريبية في تصميم قطاعات كاملة العشوائية في قطع منشقة بثلاث تكررات . تم تقييم النمو الخضري وفقا لطول النبات، عدد الاوراق وطول الورقة والانتاجية والجودة وفقا للانتاجية الكلية، الابصال القابله والغير قابله للتسويق نسبة الابصال المزدوجة و المزهرة وصفات الجودة الاخرى (قطر وطول البصلة، قطر العنق، عدد الحلقات ونسبة المواد الصلبة الذائبة والمادة الجافة). اوضحت النتائج أن النمو الخضري لم يتأثر معنويا بحجم البصيالات او اضافة الاسمدة منفردة في حين تم الحصول على اعلى نمو خضري بأضافة السماد العضوي+الاسمدة الكيميائية. البصيالات متوسطة الحجم اعطت أعلى إنتاجية كلية و إنتاجية ابصال قابلة للتسويق، اضافة السماد العضوي وحده او مع الاسمدة الكيميائية اعطى اعلى إنتاجية كلية وابصال قابلة للتسويق وجودة عالية (نسبة مئوية %) منخفضه من الابصال المزدوجة والمزهرة ومحتوى عالى من المواد الصلبة الذائبة الكلية والمادة الجافة)، خاصة في البصيالات المتوسطة الحجم، والمطلوب قدما دراسات لمعدلات السماد المناسبة .

List of Content

Subject	Page No.
Dedication	I
Acknowledgments	II
Abstract	III
Abstract in Arabic	V
List of contents	VI
List of Tables	XI
Chapter Two: Literature Review	1
Chapter Two: Literature Review	4
2-1-1 Effect of set size vegetative growth	4
2-1-2 Effect of set size yield and quality	4
2-2 Effect of fertilizer type	5
2-2-1-1 Effect organic fertilizers vegetative growth	5
2-2-1-2 Effect organic fertilizers yield and quality	6
2-2-2 Effect nitrogen fertilizers	6
2-2-2-1 Effect nitrogen fertilizers vegetative growth	7
2-2-2-2 Effect nitrogen fertilizers yield and quality	7
2-3 Effect combination of nitrogen, phosphorus and potassium (NPK)	8
2-2-3-1 Effect combination of nitrogen, phosphorus and potassium (NPK) vegetative growth	8
2-2-3-2 Effect combination of nitrogen, phosphorus and potassium (NPK) yield and quality	9

Subject	Page No.
2-2-4-1 Effect combination of organic and nitrogen fertilizers vegetative growth	9
2-2-4-2 Effect combination of organic and nitrogen fertilizers yield and quality	10
Chapter Three: Materials and Methods	11
Location of experiment	11
The Materials	11
Methods	11
Treatments	11
Cultural practices	12
Data collected	13
Vegetative growth	13
1.Plant height(cm)	13
2.Number of leaves	13
3.Leaf length	13
Yield and yield components	13
1. Yield/plant (bulb weight)	13
2. Total yield	13
3. Marketable yield (sound bulbs)	14
4. Percentage of double bulbs	14
5. Percentage of bolter bulbs	14
6. Bulb diameter	14
7. Number of storage leaves	14
8. Total soluble solids (T.S.S.)	14
9. Bulb dry matter	15

Subject	Page No.
Experimental design and statistical	16
Chapter Four: Results	16
1-Vegetative growth	16
1-1 Plant height	16
1-2 Number of leaves /plant	16
1-3 Leaf length	19
2- Yield and yield components	19
2-1 Yield	19
2-1-1 Total bulb yield	19
2 -2 -1 Bulb weight(g)	19
2-2-2 Yield of Marketable bulbs	23
2-2-3 Yield of unmarketable bulbs	23
2-2-3-1 Double bulbs	23
2-2-3-2 Bolting bulbs	26
3-1-1 Bulb diameter	26
3- 1- 2 Number of storage leaves (rings)/bulb	29
3-1-3 Total soluble solids	29
3-1-4 Dry matter content	29
Chapter Five: Discussion	33
Effect of set size	33
Vegetative growth	33
Bulb yield and quality	33
Effect of fertilizers types	34
Vegetative growth	34

Subject	Page No.
Bulb yield and quality	35
Conclusion	37
References	39
Appendices	52
Appendix (1).Monthly means of temperature, relative humidity and rainfall (mm) during the growing season (Aug. 2015-Feb.2016).	52
Appendix (2).Variety Description and characteristics.	53
Appendix (3).Compost Elkhaseeb analysis.	55
Appendix (4).Analysis of variance.	56

List of Tables

Table	Page No.
1. Effect of set size and fertilizer type (Elkhasseb, Urea and NPK) on plant height (cm) of Baftaim onion cultivar after three and four months from planting.	17
2. Effect of set size and fertilizer type (Elkhasseb, Urea and NPK) on number of leaves of Baftaim onion cultivar after three and four months from planting.	18
3. Effect of set size and fertilizer type (Elkhasseb, Urea and NPK) on leaf length (cm) of Baftaim onion cultivar after three and four months from planting.	20
4. Effect of set size and fertilizer type (Elkhaseeb, Urea and NPK) on total yield (t/ha) of Baftaim onion cultivar	21
5. Effect of set size and fertilizer type (Elkhaseeb, Urea and NPK) on average bulb weight (g) of Baftaim onion cultivar	22
6. Effect of set size and fertilizer type (Elkhaseeb, Urea and NPK) on marketable yield (t/ha) of Baftaim onion cultivar	24
7. Effect of set size and fertilizer type (Elkhaseeb, Urea and NPK) on percentage by weight of double bulbs of Baftaim onion cultivar	25
8. Effect of set size and fertilizer type (Elkhaseeb, Urea and NPK) on (%) of bolting bulbs of Baftaim onion cultivar	27
9. Effect of set size and fertilizer type (Elkhaseeb, Urea and NPK) on bulb diameter (cm) of Baftaim onion cultivar	28

Table	Page No.
10. Effect of set size and fertilizer type (Elkhaseeb, Urea and NPK) on number of storage leaves (rings)/ bulb of Baftaim onion cultivar	30
11. Effect of set size and fertilizer type (Elkhaseeb, Urea and NPK) on total soluble solids (T.S.S.) of Baftaim onion cultivar	31
12. Effect of set size and fertilizer type (Elkhaseeb, Urea and NPK) on percentage dry matter of bulbs of Baftaim onion cultivar	32