تقرير حول تقييم اصناف بلدية من الشعير

الجمهورية اللبنانية
مكتب وزير الدولة لشؤون التنمية الإدارية
مركز مشاريع ودراسات القطاع العام

Agrobiodiversity Project - LEBANON

Barley Landraces Evaluation

Tel Amara 2000-2001

Republic of Lebanon
Office of the Minister of State for Administrative Reform
Center for Public Sector Projects and Studies
(C.P.S.P.S.)

Progress Report

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Background

The evaluated 9 populations of barley landraces were collected from 9 farmers from locations in Nabha, Ham and Aarsal as shown in table below.
Around 100 spikes from each of the 9 population were collected and planted each in one row at Tel Amara.

Pop. Name	Source
2-3	Nabha
2-6	Nabha
2-14	Nabha
2-15	Nabha
2-16	Nabha
2-25	Aarsal
2-26	Aarsal
2-28	Ham
2-30	Aarsal

Twenty rows were evaluated from each population thus representing 20 different spikes. From each row, 3 plants were harvested and evaluated for grain yield per plant, biological yield per plant and number of spikes per plant. Results of these data are presented in Tables 1-3.

Results

Significant variability was observed within the collected populations of barley in relation to grain and biological yields per plant, as well as number of spikes per plant (Tables 1-3).

Great variability was also observed among the 9 collected populations as shown in Table 4. The population numbers 2-3 and 2-6 (from Nabha) were both superior interms of average grain yield, average biological yields and average number of spikes per plant as compared to the other 7 populations.

Based on the analysis of variance results, individual entries from each populations were identified as significantly better than the overall mean of each population. Some of these entries were special because of combining good means of all 3 studied yield characters as shown in Bold in Table 5.

In particular, attention should be given to entry 2-6-5 because it was highest in grain yield , biological yield and spike number.

Finally, the entries outlined in Table 5 can provide useful information for creating new mixtures of the landraces that will certainly have better productivity than the original collected population from the farmer.

Table 1. Barley average grain yield per plant (grs.)

Pop.No/ Row No	Av.GY/PLT (grs.) ± SD	Pop.No/ Row No	Av.GY/PLT (grs.) ± SD	Pop.No/ Row No	Av.GY/PLT (grs.) ± SD	Pop.No/ Row No	Av.GY/PLT (grs.) ± SD	Pop.No/ Row No	Av.GY/PLT (grs.) ± SD
2-3-1	14.1 ± 5	2-6-1	11.0 ± 8	2-14-1	3.8 ± 1	2-15-1	4.2 ± 0	**2-16-1**	**11.8 ± 3** ≺
2-3-2	5.7 ± 3	2-6-2	6.7 ± 2	2-14-2	3.9 ± 1	2-15-2	5.6 ± 1	**2-16-2**	**11.1 ± 1** ≺
2-3-3	11.8 ± 8	2-6-3	8.0 ± 2	**2-14-3**	**8.5 ± 4** ≺	2-15-3	5.2 ± 0	2-16-3	6.0 ± 0
2-3-4	**14.7 ± 3** ≺	2-6-4	6.5 ± 2	2-14-4	4.5 ± 2	**2-15-4**	**12.6 ± 6** ≺	2-16-4	7.0 ± 2
2-3-5	10.7 ± 3	**2-6-5**	**17.8 ± 14** ≺	**2-14-5**	**10.6 ± 2** ≺	2-15-5	3.3 ± 0	**2-16-5**	**13.5 ± 1** ≺
2-3-6	10.9 ± 5	2-6-6	10.9 ± 1	2-14-6	3.1 ± 1	2-15-6	9.2 ± 2	2-16-6	7.0 ± 3
2-3-7	8.0 ± 8	2-6-7	12.4 ± 7	2-14-7	4.0 ± 2	2-15-7	7.7 ± 3	2-16-7	8.2 ± 2
2-3-8	7.3 ± 5	2-6-8	5.1 ± 1	2-14-8	5.8 ± 1	2-15-8	7.5 ± 1	**2-16-8**	**10.0 ± 1** ≺
2-3-9	11.9 ± 6	2-6-9	9.9 ± 3	2-14-9	6.3 ± 1	2-15-9	6.8 ± 3	2-16-9	8.8 ± 0
2-3-10	8.8 ± 5	2-6-10	12.3 ± 1	2-14-10	5.5 ± 2	2-15-10	6.4 ± 1	2-16-10	6.2 ± 1
2-3-11	**16.8 ± 1** ≺	2-6-11	7.7 ± 2	**2-14-11**	**8.2 ± 4** ≺	2-15-11	8.5 ± 2	2-16-11	4.8 ± 2
2-3-12	5.0 ± 3	2-6-12	6.4 ± 2	2-14-12	5.8 ± 1	2-15-12	4.3 ± 1	**2-16-12**	**10.1 ± 1** ≺
2-3-13	7.6 ± 1	2-6-13	11.3 ± 6	2-14-13	6.7 ± 0	**2-15-13**	**10.7 ± 1** ≺	2-16-13	5.9 ± 1
2-3-14	7.6 ± 3	2-6-14	8.5 ± 2	2-14-14	3.1 ± 0	2-15-14	9.2 ± 1	2-16-14	8.1 ± 2
2-3-15	4.8 ± 4	2-6-15	9.7 ± 2	**2-14-15**	**7.4 ± 1** ≺	2-15-15	6.1 ± 3	2-16-15	8.9 ± 2
2-3-16	3.5 ± 2	2-6-16	11.0 ± 3	2-14-16	5.5 ± 1	**2-15-16**	**11.2 ± 3** ≺	**2-16-16**	**11.7 ± 2** ≺
2-3-17	12.5 ± 3	2-6-17	12.2 ± 6	2-14-17	6.3 ± 0	2-15-17	7.9 ± 1	2-16-17	7.0 ± 1
2-3-18	9.3 ± 8	2-6-18	13.2 ± 3	2-14-18	5.4 ± 1	2-15-18	8.1 ± 2	2-16-18	5.6 ± 1
2-3-19	9.6 ± 6	**2-6-19**	**15.4 ± 2** ≺	2-14-19	3.8 ± 0	**2-15-19**	**13.0 ± 2** ≺	2-16-19	6.0 ± 1
2-3-20	9.6 ± 6	2-6-20	14.9 ± 4	2-14-20	4.4 ± 1	2-15-20	5.9 ± 2	2-16-20	8.2 ± 2
Mean	9.5	**Mean**	10.5	**Mean**	5.6	**Mean**	7.7	**Mean**	8.3
CV	54 %	**CV**	47 %	**CV**	33 %	**CV**	31 %	**CV**	20 %
F-Value	1.4 NS	**F-Value**	1.4 NS	**F-Value**	3.4 **	**F-Value**	3.9 **	**F-Value**	6.1 **
LSD	5.1	**LSD**	4.9	**LSD**	1.85	**LSD**	2.4	**LSD**	1.7

* Significant ** Highly Significant NS= Non significant ≺ Significantly better than the total mean.

Table 1 Cont'd. Barley average grain yield per plant (grs.)

Pop.No/ Row No	Av.GY/PLT (grs.) ± SD	Pop.No/ Row No	Av.GY/PLT (grs.) ± SD	Pop.No/ Row No	Av.GY/PLT (grs.) ± SD	Pop.No/ Row No	Av.GY/PLT (grs.) ± SD
2-25-1	**12.1 ± 4 ≺**	2-26-1	7.2 ± 1	2-28-1	4.2 ± 0	**2-30-1**	**9.4 ± 0 ≺**
2-25-2	8.2 ± 3	**2-26-2**	**11.8 ± 7 ≺**	2-28-2	8.1 ± 3	**2-30-2**	**9.9 ± 1 ≺**
2-25-3	**14.6 ± 1 ≺**	2-26-3	6.6 ± 1	2-28-3	7.8 ± 2	2-30-3	8.4 ± 1
2-25-4	5.0 ± 1	2-26-4	7.4 ± 2	2-28-4	6.9 ± 2	2-30-4	8.9 ± 0
2-25-5	10.0 ± 5	2-26-5	3.2 ± 1	2-28-5	6.5 ± 1	**2-30-5**	**9.3 ± 1 ≺**
2-25-6	9.8 ± 1	2-26-6	6.5 ± 1	2-28-6	8.5 ± 1	2-30-6	4.4 ± 2
2-25-7	4.8 ± 2	2-26-7	3.7 ± 2	2-28-7	7.5 ± 0	2-30-7	7.1 ± 1
2-25-8	3.0 ± 1	2-26-8	9.0 ± 6	2-28-8	4.1 ± 1	2-30-8	6.5 ± 1
2-25-9	5.5 ± 1	2-26-9	2.5 ± 1	**2-28-9**	**11.2 ± 3 ≺**	2-30-9	7.4 ± 1
2-25-10	9.2 ± 4	2-26-10	7.5 ± 1	2-28-10	3.6 ± 1	2-30-10	6.6 ± 2
2-25-11	7.4 ± 1	2-26-11	7.3 ± 0	2-28-11	6.0 ± 0	2-30-11	6.2 ± 1
2-25-12	4.2 ± 2	2-26-12	8.3 ± 1	2-28-12	5.6 ± 1	2-30-12	3.6 ± 3
2-25-13	3.5 ± 3	**2-26-13**	**11.6 ± 6 ≺**	2-28-13	5.8 ± 1	**2-30-13**	**9.8 ± 2 ≺**
2-25-14	10.0 ± 0	2-26-14	6.3 ± 2	2-28-14	6.2 ± 3	**2-30-14**	**9.2 ± 3 ≺**
2-25-15	8.5 ± 4	2-26-15	5.7 ± 4	2-28-15	7.8 ± 2	2-30-15	5.4 ± 1
2-25-16	4.3 ± 1	2-26-16	1.5 ± 0	2-28-16	6.8 ± 3	2-30-16	5.0 ± 1
2-25-17	**11.4 ± 2 ≺**	2-26-17	5.8 ± 2	2-28-17	4.3 ± 1	**2-30-17**	**9.4 ± 1 ≺**
2-25-18	9.6 ± 2	2-26-18	4.4 ± 3	2-28-18	7.2 ± 1	2-30-18	5.1 ± 1
2-25-19	7.9 ± 2	2-26-19	5.5 ± 2	2-28-19	5.8 ± 2	2-30-19	7.5 ± 3
2-25-20	7.0 ± 3	2-26-20	5.0 ± 3	**2-28-20**	**21.6 ± 4 ≺**	**2-30-20**	**9.0 ± 2 ≺**
Mean	7.8	**Mean**	6.3	**Mean**	7.3	**Mean**	7.4
CV	33 %	**CV**	48 %	**CV**	27 %	**CV**	23%
F-Value	4.5 **	**F-Value**	2.3 NS	**F-Value**	11.2 **	**F-Value**	4.0 **
LSD	**2.6**	**LSD**	3.0	**LSD**	2.0	**LSD**	1.7

* Significant ** Highly Significant NS= Non significant ≺ Significantly better than the total mean.

Table 2. Averages of biological yields (gr/plt) of collected barley landraces

Pop.No/ Row No	Av.GY/PLT (grs.) ± SD	Pop.No/ Row No	Av.GY/PLT (grs.) ± SD	Pop.No/ Row No	Av.GY/PLT (grs.) ± SD	Pop.No/ Row No	Av.GY/PLT (grs.) ± SD	Pop.No/ Row No	Av.GY/PLT (grs.) ± SD
2-3-1	27.7 ± 10	2-6-1	25.0 ± 20	2-14-1	11.5 ± 1	2-15-1	8.2 ± 0	**2-16-1**	**33.4 ± 7** ⋖
2-3-2	13.8 ± 4	2-6-2	13.9 ± 1	2-14-2	10.9 ± 1	2-15-2	12.0 ± 3	**2-16-2**	**27.4 ± 9** ⋖
2-3-3	24.8 ± 13	2-6-3	20.5 ± 3	2-14-3	16.6 ± 6	2-15-3	9.6 ± 1	2-16-3	12.7 ± 1
2-3-4	30.6 ± 9	2-6-4	17.8 ± 3	2-14-4	11.8 ± 4	**2-15-4**	**23.3 ± 7** ⋖	2-16-4	15.3 ± 2
2-3-5	26.5 ± 7	**2-6-5**	**37.5 ± 28** ⋖	**2-14-5**	**23.3 ± 4** ⋖	2-15-5	9.6 ± 1	**2-16-5**	**29.0 ± 4** ⋖
2-3-6	23.5 ± 9	2-6-6	16.8 ± 27	2-14-6	10.4 ± 1	2-15-6	15.0 ± 5	2-16-6	13.2 ± 5
2-3-7	20.2 ± 20	2-6-7	16.2 ± 7	2-14-7	12.7 ± 3	2-15-7	12.1 ± 7	2-16-7	15.1 ± 3
2-3-8	19.4 ± 14	2-6-8	12.3 ± 1	2-14-8	15.9 ± 1	2-15-8	12.9 ± 1	**2-16-8**	**25.8 ± 3** ⋖
2-3-9	24.7 ± 11	2-6-9	22.5 ± 4	**2-14-9**	**18.2 ± 5** ⋖	2-15-9	12.8 ± 4	2-16-9	20.8 ± 1
2-3-10	17.7 ± 6	2-6-10	25.5 ± 5	2-14-10	6.5 ± 3	2-15-10	11.3 ± 2	2-16-10	18.5 ± 9
2-3-11	**33.4 ± 2** ⋖	2-6-11	16.2 ± 1	2-14-11	14.0 ± 9	2-15-11	16.7 ± 3	2-16-11	12.7 ± 1
2-3-12	11.7 ± 7	2-6-12	15.2 ± 2	2-14-12	9.5 ± 2	2-15-12	5.4 ± 2	2-16-12	24.2 ± 7
2-3-13	16.5 ± 3	2-6-13	23.5 ± 12	2-14-13	12.6 ± 2	2-15-13	17.3 ± 1	2-16-13	14.7 ± 0
2-3-14	13.7 ± 6	2-6-14	13.4 ± 5	2-14-14	3.7 ± 0	2-15-14	15.7 ± 1	2-16-14	21.0 ± 7
2-3-15	11.0 ± 8	2-6-15	15.7 ± 4	2-14-15	16.4 ± 1	2-15-15	13.0 ± 6	**2-16-15**	**26.1 ± 6** ⋖
2-3-16	7.2 ± 5	2-6-16	19.6 ± 3	**2-14-16**	**17.4 ± 5** ⋖	**2-15-16**	**18.6 ± 6** ⋖	2-16-16	24.5 ± 2
2-3-17	24.0 ± 4	2-6-17	24.7 ± 11	2-14-17	14.4 ± 1	2-15-17	15.2 ± 5	2-16-17	17.6 ± 0
2-3-18	18.3 ± 14	2-6-18	25.3 ± 9	2-14-18	15.1 ± 3	2-15-18	15.9 ± 3	2-16-18	16.9 ± 3
2-3-19	22.0 ± 14	**2-6-19**	**30.8 ± 2** ⋖	2-14-19	12.1 ± 2	**2-15-19**	**24.7 ± 7** ⋖	2-16-19	15.2 ± 3
2-3-20	**40.2 ± 25** ⋖	**2-6-20**	**33.2 ± 9** ⋖	2-14-20	10.5 ± 3	2-15-20	16.6 ± 3	2-16-20	17.2 ± 4
Mean	**21.3**	**Mean**	**21.3**	**Mean**	**13.2**	**Mean**	**14.3**	**Mean**	**20.1**
CV	**53 %**	**CV**	**45%**	**CV**	**28%**	**CV**	**30%**	**CV**	**23%**
F-Value	**1.5 NS**	**F-Value**	**1.6 NS**	**F-Value**	**4.1****	**F-Value**	**3.5****	**F-Value**	**5.0****
LSD	**11.4**	**LSD**	**9.7**	**LSD**	**3.7**	**LSD**	**4.3**	**LSD**	**4.7**

* Significant ** Highly Significant NS= Non significant ⋖ Significantly better than the total mean.

Table 2. cont'd. Averages of biological yields (gr/plt) of collected barley landraces

Pop.No/ Row No	Av.BY/PLT (grs.) ± SD	Pop.No/ Row No	Av.BY/PLT (grs.) ± SD	Pop.No/ Row No	Av.BY/PLT (grs.) ± SD	Pop.No/ Row No	Av.BY/PLT (grs.) ± SD
2-25-1	**23.5 ± 5 ≺**	2-26-1	13.8 ± 2	2-28-1	12.7 ± 1	2-30-1	14.8 ± 2
2-25-2	16.8 ± 2	2-26-2	22.5 ± 15	2-28-2	19.2 ± 8	**2-30-2**	**21.5 ± 2 ≺**
2-25-3	**24.8 ± 3 ≺**	2-26-3	14.8 ± 3	2-28-3	17.3 ± 5	**2-30-3**	**19.8 ± 2 ≺**
2-25-4	11.2 ± 2	2-26-4	17.5 ± 4	2-28-4	13.2 ± 3	2-30-4	18.7 ± 1
2-25-5	**30.5 ± 11 ≺**	2-26-5	12.6 ± 1	2-28-5	13.5 ± 2	2-30-5	15.8 ± 1
2-25-6	21.8 ± 7	2-26-6	17.5 ± 6	2-28-6	18.0 ± 2	2-30-6	10.0 ± 2
2-25-7	11.2 ± 2	2-26-7	15.2 ± 10	2-28-7	19.5 ± 1	2-30-7	14.7 ± 2
2-25-8	9.0 ± 4	2-26-8	21.1 ± 15	2-28-8	11.7 ± 2	2-30-8	12.2 ± 1
2-25-9	9.0 ± 7	2-26-9	8.1 ± 1	**2-28-9**	**22.4 ± 9 ≺**	2-30-9	17.3 ± 3
2-25-10	19.0 ± 7	2-26-10	15.3 ± 4	2-28-10	11.1 ± 3	2-30-10	14.3 ± 4
2-25-11	16.1 ± 2	2-26-11	16.0 ± 2	2-28-11	13.1 ± 0	2-30-11	16.7 ± 2
2-25-12	12.8 ± 2	2-26-12	21.9 ± 1	2-28-12	13.6 ± 1	2-30-12	10.9 ± 2
2-25-13	17.9 ± 8	**2-26-13**	**27.4 ± 11 ≺**	2-28-13	13.6 ± 3	**2-30-13**	**21.3 ± 3 ≺**
2-25-14	16.1 ± 3	2-26-14	19.8 ± 12	2-28-14	17.4 ± 7	**2-30-14**	**21.9 ± 5 ≺**
2-25-15	18.0 ± 8	2-26-15	11.3 ± 6	2-28-15	16.9 ± 3	2-30-15	14.7 ± 5
2-25-16	13.9 ± 4	2-26-16	7.9 ± 2	2-28-16	15.3 ± 6	2-30-16	13.3 ± 1
2-25-17	18.8 ± 2	2-26-17	11.4 ± 4	2-28-17	13.3 ± 3	**2-30-17**	**20.2 ± 1 ≺**
2-25-18	22.5 ± 14	2-26-18	12.3 ± 5	2-28-18	10.8 ± 2	2-30-18	12.8 ± 0
2-25-19	17.0 ± 1	2-26-19	15.5 ± 6	2-28-19	11.4 ± 4	2-30-19	16.1 ± 4
2-25-20	18.8 ± 6	2-26-20	14.3 ± 4	**2-28-20**	**24.3 ± 5 ≺**	2-30-20	18.1 ± 3
Mean	**17.4**	**Mean**	**15.8**	**Mean**	**15.4**	**Mean**	**16.3**
CV	**35%**	**CV**	**46%**	**CV**	**28%**	**CV**	**18%**
F-Value	**2.5****	**F-Value**	**1.35 NS**	**F-Value**	**2.3**	**F-Value**	**4.6****
LSD	**6.1**	**LSD**	**7.3**	**LSD**	**4.3**	**LSD**	**2.8**

* Significant ** Highly Significant NS= Non significant ≺ Significantly better than the total mean.

Table 3. Averages of number of spikes per plant of collected barley landraces.

Pop.No/ Row No	Av.No of spikes / plant	Pop.No/ Row No	Av.No of spikes / plant	Pop.No/ Row No	Av.No of spikes / plant	Pop.No/ Row No	Av.No of spikes / plant	Pop.No/ Row No	Av.GY/PLT (grs.) ± SD
2-3-1	18 ± 6	2-6-1	20 ± 15	2-14-1	8 ± 1	2-15-1	7 ± 2	**2-16-1**	**21 ± 2** ⋖
2-3-2	15 ± 5	2-6-2	13 ± 3	2-14-2	11 ± 1	2-15-2	7 ± 1	2-16-2	16 ± 1
2-3-3	17 ± 9	2-6-3	18 ± 3	2-14-3	13 ± 3	2-15-3	8 ± 1	2-16-3	9 ± 2
2-3-4	25 ± 7	2-6-4	14 ± 5	2-14-4	8 ± 3	**2-15-4**	**18 ± 2** ⋖	2-16-4	10 ± 2
2-3-5	22 ± 6	**2-6-5**	**34 ± 25** ⋖	**2-14-5**	**19 ± 6** ⋖	2-15-5	9 ± 1	**2-16-5**	**20 ± 3** ⋖
2-3-6	16 ± 8	2-6-6	20 ± 2	2-14-6	8 ± 2	2-15-6	13 ± 1	2-16-6	12 ± 7
2-3-7	21 ± 21	2-6-7	18 ± 5	2-14-7	7 ± 2	2-15-7	12 ± 5	2-16-7	8 ± 1
2-3-8	14 ± 10	2-6-8	11 ± 1	2-14-8	12 ± 1	2-15-8	10 ± 1	**2-16-8**	**19 ± 3** ⋖
2-3-9	19 ± 6	2-6-9	20 ± 2	**2-14-9**	**14 ± 5** ⋖	2-15-9	14 ± 3	2-16-9	15 ± 3
2-3-10	20 ± 13	2-6-10	20 ± 6	2-14-10	6 ± 2	2-15-10	8 ± 2	2-16-10	12 ± 1
2-3-11	23 ± 2	2-6-11	13 ± 2	**2-14-11**	**18 ± 8** ⋖	**2-15-11**	**16 ± 3** ⋖	2-16-11	9 ± 3
2-3-12	13 ± 5	2-6-12	15 ± 5	2-14-12	11 ± 3	2-15-12	6 ± 1	2-16-12	16 ± 4
2-3-13	12 ± 3	2-6-13	16 ± 7	2-14-13	12 ± 1	**2-15-13**	**16 ± 1** ⋖	2-16-13	13 ± 4
2-3-14	9 ± 4	2-6-14	14 ± 6	2-14-14	5 ± 1	2-15-14	11 ± 1	2-16-14	15 ± 5
2-3-15	12 ± 6	2-6-15	14 ± 3	2-14-15	10 ± 2	2-15-15	12 ± 2	**2-16-15**	**19 ± 5** ⋖
2-3-16	7 ± 3	2-6-16	19 ± 5	**2-14-16**	**16 ± 6** ⋖	**2-15-16**	**18 ± 4** ⋖	**2-16-16**	**19 ± 2** ⋖
2-3-17	19 ± 4	2-6-17	24 ± 14	2-14-17	8 ± 1	2-15-17	13 ± 5	2-16-17	13 ± 2
2-3-18	11 ± 9	2-6-18	20 ± 6	2-14-18	11 ± 3	2-15-18	11 ± 1	2-16-18	15 ± 1
2-3-19	12 ± 10	2-6-19	24 ± 5	2-14-19	9 ± 1	**2-15-19**	**20 ± 7** ⋖	2-16-19	11 ± 3
2-3-20	24 ± 19	**2-6-20**	**29 ± 8** ⋖	2-14-20	8 ± 1	**2-15-20**	**16 ± 2** ⋖	2-16-20	10 ± 3
Mean	**17**	**Mean**	**19**	**Mean**	**11**	**Mean**	**12**	**Mean**	**14**
CV	**56%**	**CV**	**46%**	**CV**	**33%**	**CV**	**24%**	**CV**	**24%**
F-Value	**0.9 NS**	**F-Value**	**1.3 NS**	**F-Value**	**3.6****	**F-Value**	**5.5****	**F-Value**	**3.9****
LSD	**9**	**LSD**	**8**	**LSD**	**3**	**LSD**	**3**	**LSD**	**3**

* Significant ** Highly Significant NS= Non significant ⋖ Significantly better than the total mean.

Table 3. cont'd. Averages of number of spikes per plant of collected barley landraces.

Pop.No/ Row No	Av.No of spikes / plant	Pop.No/ Row No	Av.No of spikes / plant	Pop.No/ Row No	Av.No of spikes / plant	Pop.No/ Row No	Av.No of spikes / plant
2-25-1	17 ± 3	2-26-1	12 ± 2	2-28-1	15 ± 3	2-30-1	15 ± 2
2-25-2	14 ± 4	2-26-2	20 ± 13	2-28-2	15 ± 6	**2-30-2**	**20 ± 5 ≺**
2-25-3	17 ± 3	2-26-3	9 ± 1	**2-28-3**	**17 ± 5 ≺**	**2-30-3**	**19 ± 3 ≺**
2-25-4	8 ± 1	2-26-4	14 ± 1	2-28-4	10 ± 2	2-30-4	15 ± 2
2-25-5	**26 ± 1 ≺**	2-26-5	12 ± 1	2-28-5	11 ± 1	2-30-5	12 ± 2
2-25-6	16 ± 5	2-26-6	14 ± 7	2-28-6	17 ± 2	2-30-6	9 ± 2
2-25-7	11 ± 1	2-26-7	13 ± 8	2-28-7	15 ± 2	2-30-7	12 ± 2
2-25-8	6 ± 1	**2-26-8**	**24 ± 18 ≺**	2-28-8	12 ± 2	2-30-8	11 ± 2
2-25-9	9 ± 1	2-26-9	10 ± 1	2-28-9	19 ± 4	2-30-9	12 ± 4
2-25-10	17 ± 10	2-26-10	12 ± 4	2-28-10	9 ± 3	2-30-10	13 ± 2
2-25-11	11 ± 1	2-26-11	14 ± 3	2-28-11	9 ± 1	2-30-11	11 ± 2
2-25-12	9 ± 2	2-26-12	17 ± 1	2-28-12	13 ± 2	2-30-12	9 ± 3
2-25-13	16 ± 6	**2-26-13**	**27 ± 13 ≺**	2-28-13	10 ± 1	**2-30-13**	**16 ± 3 ≺**
2-25-14	11 ± 1	2-26-14	13 ± 7	2-28-14	12 ± 2	2-30-14	14 ± 3
2-25-15	**19 ± 6 ≺**	2-26-15	11 ± 5	2-28-15	13 ± 2	2-30-15	13 ± 1
2-25-16	9 ± 3	2-26-16	10 ± 2	2-28-16	12 ± 2	2-30-16	11 ± 1
2-25-17	17 ± 3	2-26-17	12 ± 2	2-28-17	14 ± 2	2-30-17	13 ± 2
2-25-18	15 ± 6	2-26-18	13 ± 3	2-28-18	12 ± 1	2-30-18	9 ± 1
2-25-19	14 ± 1	2-26-19	14 ± 6	2-28-19	12 ± 2	2-30-19	15 ± 3
2-25-20	11 ± 6	2-26-20	11 ± 6	**2-28-20**	**30 ± 5 ≺**	2-30-20	15 ± 3
Mean	**14**	**Mean**	**14**	**Mean**	**14**	**Mean**	**13**
CV	**30%**	**CV**	**50%**	**CV**	**21%**	**CV**	**21%**
F-Value	**3.7****	**F-Value**	**1.3 NS**	**F-Value**	**7.2****	**F-Value**	**3.5****
LSD	**4**	**LSD**	**7**	**LSD**	**3**	**LSD**	**3**

* Significant ** Highly Significant NS= Non significant ≺ Significantly better than the total mean.

Table 4 . Performance of collected barley populations

Population	Av. Grain yld/plt (grs.)	Av. Boil.yld/plt (grs.)	No. of spikes/plt
2-3	9.5	21.3	17
2-6	10.5	21.3	19
2-14	5.6	13.2	11
2-15	7.7	14.3	12
2-16	8.3	20.1	14
2-25	7.8	17.4	14
2-26	6.3	15.8	14
2-28	7.3	15.4	14
2-30	7.4	16.3	13

Table 5. Proposed entries for creation of new mixtures of barley landraces

Population No.	W.R.T Biological yield / plant	W.R.T Grain yield Per plant	W.R.T Number of spikes / plant
2-3	2-3-11 2-3-20	2-3-4 2-3-11	-
2-6	**2-6-5** 2-6-19 2-6-20	**2-6-5** 2-6-19	**2-6-5** 2-6-20
2-14	**2-14-5** 2-14-9 2-14-16	2-14-3 2-14-15 **2-14-5** 2-14-11	**2-14-5** 2-14-16 2-14-9 2-14-11
2-15	**2-15-4** **2-15-16** **2-15-19**	**2-15-4** **2-15-19** 2-15-13 **2-15-16**	**2-15-4** **2-15-16** 2-15-11 **2-15-19** 2-15-13 2-15-20
2-16	**2-16-1** **2-16-8** 2-16-2 2-16-15 **2-16-5**	**2-16-1** **2-16-8** 2-16-2 2-16-12 **2-16-5** 2-16-16	**2-16-1** 2-16-15 **2-16-5** 2-16-16 **2-16-8**
2-25	2-25-1 2-25-3 2-25-5	2-25-1 2-25-3 2-25-17	2-25-5 2-25-15
2-26	**2-26-13**	2-26-2 **2-26-13**	2-26-8 **2-26-13**
2-28	2-28-9 **2-28-20**	2-28-9 **2-28-20**	2-28-3 **2-28-20**
2-30	**2-30-2** 2-30-14 2-30-3 2-30-17 **2-30-13**	2-30-1 2-30-14 **2-30-2** 2-30-17 2-30-5 2-30-20 **2-30-13**	**2-30-2** 2-30-3 **2-30-13**