

Pearl millet

AICRP- Pear millet, JAU, CCS-HAU, SKNAU, MPKV, IARI (6)

Objectives:

- Development of pearl millet genotype for high Zinc and Iron through conventional breeding and identification of genomic regions associated with enhanced micronutrients through mapping and association mapping.
- Development of value added products for ready to cook and multi grain mixture suitable for mid-day meal scheme

Target Traits

Iron > 42 ppm

Zinc > 32 ppm

Varieties released

	S. No.
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Hybrid/Variety

Status

CRP centers

Iron (ppm)

Zinc (ppm)

1

HHB 299

S. O 1379 (E)/ 27.03.2018

CCS HAU,Hisar

73

41

2

HHB 311

Identified

CCS HAU, Hisar

83

39

3

RHB 233

Identified

RARI, SKN AU

83

46

4

RHB 234

Identified

RARI, SKN AU

84

41

Common study across the partners

(CRP Biofortification Parental Line Trial (CRPB PLT) *Kharif* 2017): The trial was successfully conducted across 6 locations viz., Mandor, Jamnagar, New Delhi, Dhule, Jaipur and Hisar in

zone A and B during *kharif*
2017. The trial comprises 16 entries including two checks with high Fe and Zn contributed by different ICAR-AICRP on Pearl millet centers and ICRISAT. The performance of experimental entries along with two checks viz. ICMB 98222 and Dhanshakti for days to flowering, plant height, panicle per plant, agronomic scores and Fe and Zn content (Table 1). High Fe content (84-118 ppm) were recorded in entry no. 3, 5, 4, 10, 8, 1 and high Zn content (57-84 ppm) were recorded in entry no. 3, 1, 5, 8, 1 and 4 in comparison to the best check Dhanshakti (Fe 83 and Zn 55ppm).

Table 1: CRP Biofortification parental line trial (CRPB-PLT) kharif-17

Mandor

Jam

nagar

New

Delhi

Dhule

Jaipur

Hisar

Grand mean

Fe

Zn

Fe

Zn

Fe

Zn

Fe

Zn

Fe

Zn

Fe

Zn

Fe

Zn

H 2302

47

58

75

65

107

91

79

51

85

71

114

74

84

68

J-2571

40

38

78

46

105

75

88

41

68

30

107

59

81

48

10-SB-16

70

67

135

83

165

126

113

72

126

98

100

60

118

84

PPMI 952

60

45

114

58

135

76

107

51

96

61

96

54

101

57

PPMI 958

65

49

115

56

161

108

102

44

100

69

120

71

111

66

PPMI 959

47

40

79

46

114

87

98

48

73

56

72

45

80

54

ICHFPT 16-4

46

43

86

58

101

97

102

46

38

8

86

54

77

51

ICHFPT 16-15

41

36

108

66

128

95

66

33

117

87

101

63

93

63

ICHFPT 16-17

25

22

44

28

47

49

49

26

37

29

74

54

46

35

ICHFPT 16-14

52

44

90

55

131

93

91

41

111

71

101

59

96

60

JMSB 20158

31

34

48

35

93

63

94

47

69

68

91

60

71

51

JMSB 20143

33

35

57

41

70

51

69

40

60

45

75

53

61

44

JMSB1 20159

29

30

72

42

83

62

93

40

70

55

79

50

71

46

JMSB1 20156

37

30

57

38

88

73

104

57

76

64

93

51

76

52

ICMB 98222 (C)

36

41

90

49

117

83

91

41

71

54

63

47

78

53

Dhan

shakti (C)

43

37

83

50

123

97

87

40

80

49

84

55

83

55

ICAR-All India Coordinated Research Project (AICRP – PM) Pearl Millet, Jodhpur

PI: C Tara satyavathi

Composition and distribution of CRP Bio fortification Parental Line Trial (CRPB PLT) to associated centers was carried out. CRP Biofortification Parental Line Trial was done. Maintenance programme for 48 high Fe and Zn breeding lines including A, B and R line was carried out (Table 1). In R X R crossing programme, 67 crosses attempted with the use of 11 R lines having Fe content more than 100 ppm and 32 crosses were successful. Hybridization programme using 4 A lines and 10 R lines with high Iron and Zinc content was conducted. 5 A/B lines were maintained by paired crossing.

Table 1: Details of material used in maintenance programme of high Fe and Zn lines during *Kharif* 2017 at Mandor

S No.

Name of Material

Fe (ppm)

Zn (ppm)

□

R□ Lines (38)

□

□

1

DLBHI 1013-2

2

ICJBT15-4

3

ICJBT15-7

4

ICMR 06555

5

SGP 10-120-5

6

HS 97/120-3

7

PPMI 931

8

PPMI 939

9

PPMI 952*

111

67

10

PPMI 956

78

54

11

PPMI 957

82

54

12

PPMI 958*

106

66

13

PPMI 959*

91

64

14

H2302*

87

68

15

J-2571*

78

60

16

10-SB-16*

103

68

17

ICHFPT 16-4*

104

80

18

ICHFPT 16-14*

86

67

19

ICHFPT 16-15*

94

64

20

ICHFPT 16-17*

86

62

21

ICHFPT 16-1

91

56

22

ICHFPT 16-2

101

65

23

ICHFPT 16-3

100

69

24

ICHFPT 16-5

99

59

25

ICHFPT16-6

95

65

26

ICHFPT 16-7

98

65

27

ICHFPT16-8

106

69

28

ICHFPT 16-9

102

60

29

ICHFPT 16-10

95

64

30

ICHFPT 16-11

103

72

31

ICHFPT 16-12

103

64

32

ICHFPT 16-13

113

65

33

11-SB-16

84

60

34

26-SB-16

94

55

35

PPMI 951

83

59

36

PPMI 953

90

59

37

PPMI 954

88

55

38

PPMI 957

82

54

Maintenance of A/B Pairs (5)

1

JMSA 20143

JMSB 20143*

65

46

2

JMSA 20156

JMSB 20156*

69

51

3

JMSA 20158

JMSB 20158*

79

56

4

JMSA 20159

JMSB 20159*

86

60

5

ICMA 98222

ICMB 98222*

98

68

Note: * Being used in CRPBPLT 2017

Details of RXR crosses attempted during *Kharif* 2017 at Mandor

Female

Male

PPMI 952

PPMI 958, 10-SB-16, ICHFPT 16-2, ICHFPT 16-3, ICHFPT 16-9, ICHFPT 16-11

PPMI 958

ICHFPT 16-2, ICHFPT 16-3, ICHFPT 16-11

10-SB-16

PPMI 958, ICHFPT 16-2, ICHFPT 16-3, ICHFPT 16-9, ICHFPT 16-11

ICHFPT 16-4

PPMI 952, PPMI 958, 10-SB-16, ICHFPT 16-2, ICHFPT 16-3, ICHFPT 16-9

ICHFPT 16-2

PPMI 958, ICHFPT 16-9, ICHFPT 16-11

ICHFPT 16-3

PPMI 958, ICHFPT 16-9

ICHFPT16-8

ICHFPT 16-9

ICHFPT 16-9

PPMI 958, ICHFPT 16-2, ICHFPT 16-3

ICHFPT 16-11

PPMI 958, ICHFPT 16-2

ICHFPT 16-13

PPMI 952

Details of AXR line crossing programme under CRP Biofortification project during Kharif 2017 at Mandor

A- Lines (4)



R-Lines (10)

JMSA 20143, JMSA 20156, JMSA 20158, JMSA 20159



PPMI 952, PPMI 958, PPMI 959, 10-SB-16, J-2571, H2302, ICHFPT 16-4, ICHFPT 16-14, ICHFPT