



LIVSEED Starke II
NIL Common Bunt
Resistance Gene
Mapping

Warning!

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- ▶ Education: Engineer in electronics
- ▶ Profession: SW developer, automated testing of windfarm projecting SW
- ▶ Hobby: Plant breeder, farmer, gene mapper

LIVESEED Material

- ▶ 272 lines with Bt1, Bt2, Bt5, Bt7, Bt13, BtZ, BtQ and combinations of these
- ▶ Phenotyped with 8 virulence races -> (single)gene postulates
- ▶ Genotyped on TG25K array -> 24143 markers
- ▶ Physical positions TraitGenetics + Triticeae Toolbox (T3) RefSeq v1.0
- ▶ Missing physical position for 2255 markers
- ▶ + 6 Starke II based NILs

Lines

- ▶ Starke II NGB-22
- ▶ Starke NIL Bt1
- ▶ Starke NIL Bt5
- ▶ Starke NIL Bt6 or 9
- ▶ Starke NIL Bt9
- ▶ Starke NIL Bt10
- ▶ Starke NIL Bt? S1
- ▶ Starke NIL Bt? S2

Linkage Groups versus Chromosomes

- ▶ Starke NIL Bt1 - 2A 2B 2D 3A 3D 7A 7B
- ▶ Starke NIL Bt5 - 1B 2A 2B 3B 6A 6D 7A 7B
- ▶ Starke NIL Bt6 or 9 - 2A 2B 2D 6D
- ▶ Starke NIL Bt9 2A, 2B 2D 6D
- ▶ Starke NIL Bt10 1A 1D 5A 6D
- ▶ Starke NIL Bt? S1 7D

Chromosomes from literature

- ▶ Starke NIL Bt1 – 2B
- ▶ Starke NIL Bt5 – 1B
- ▶ Starke NIL Bt6 or 9 – 1B or 6D
- ▶ Starke NIL Bt9 – 6D
- ▶ Starke NIL Bt10 – 6D
- ▶ Starke NIL Bt? S1 - 7D if bt12

Linkage Groups in NILs

- ▶ Starke NIL Bt1 2B 763,630,822 bp – 801,253,554 bp, size 37,622,732 bp
- ▶ Starke NIL Bt5 1B 142,523,453 bp – 288,649,630 bp, size 146,126,177 bp
- ▶ Starke NIL 9 6D 469,248,476 bp – 473,418,710 bp, size 4,170,234 bp
- ▶ Starke NIL Bt10 6D 1,415,350 bp – 6,862,983 bp, size 5,447,633 bp
- ▶ Starke NIL Bt12 S1 7D 6,590,831 bp – 19,788,833 bp, size 13,198,002 bp

- ▶ Donor line not available (except for Bt1 (but not used)) -> linkage groups could be bigger

Linkage groups versus Differential lines

- ▶ Intervals possibly refined by comparing to lines known to carry the gene
- ▶ Starke NIL Bt1 (No differential available) 763,630,822 bp – 801,253,554 bp, size 37,622,732 bp
- ▶ Starke NIL Bt5 versus PI554104/Promesse/Hohenheimer 142,523,453 bp – 288,649,630 bp, size 146,126,177 bp
- ▶ Starke NIL Bt9 versus 6D 468,879,174 bp – 469,919,743 bp, size 1,040,569 bp
- ▶ Starke NIL Bt10 versus Weston 6D xxx bp – yyy bp, size zzzz bp
- ▶ Starke NIL Bt12 versus PI119333 7D 5,300,799 bp – 20,328,914 bp, size 15,028,115 bp

Remaining Linkage Groups

- ▶ Probably QTLs?
- ▶ To be investigated

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