Diversity Arrays Technology (DarT) in genetics and breeding of wheat and barley

Kilian A., Wenzl P., Carling J., Caig V., Evers M., Mehrabi A., Uszynski G., Huttner E.

in

Molina-Cano J.L. (ed.), Christou P. (ed.), Graner A. (ed.), Hammer K. (ed.), Jouve N. (ed.), Keller B. (ed.), Lasa J.M. (ed.), Powell W. (ed.), Royo C. (ed.), Shewry P. (ed.), Stanca A.M. (ed.).
Cereal science and technology for feeding ten billion people: genomics era and beyond

Zaragoza : CIHEAM / IRTA
Options Méditerranéennes : Série A. Séminaires Méditerranéens; n. 81

2008
pages 103

Diversity Arrays Technology (DarT) in genetics and breeding of wheat and barley

A. Kilian, P. Wenzl, J. Carling, V. Caig, M. Evers, A. Mehrabi, G. Uszynski and E. Huttner
Triticarte and Diversity Arrrays Technology Pty. Ltd., G.P.O. Box 7141
Yarralumia, ACT 2600, Australia
Email: a.kilian@diversityarrays.com

Diversity Arrays Technology (DarT) complements the molecular toolkit for whole genome-based studies. DarT has been developed for over 20 plant species representing a wide range of genome size, ploidy level and breeding systems, including a number of cereal crops. DarT is a sequence-independent, highthrougput technology, discovering and typing hundreds of markers in a single hybridisation-based assay. DarT markers are mostly based on Single Nucleotide Polymorphisms, but detect also Insertion/Deletion and methylation polymorphisms. DarT has bee effectively used in characterisation and management of genetic diversity in domesticated species and their reletives, assocaition mapping and pedigree-based maping, rapid creation of linkage maps for QTL analysis, marker-rait associations through Bulked Segregant Analysis, accelerated introgression from wild germplasm (e.g. AB QTL). DarT is commrcially delivered for wheat and barley through Triticarte service (www.triticarte.com.au). Since its establishment Triticarte has rapidly increased the numbers of samples in 2006/2007. Currently used arrays contain approximately 2000 markers for both barley andwheat, with 4000 markers target for wheat in early 2007. Average number of polymorphic markers reported to customers in 2005 was 472 for barley and 63 for wheat, with average price per datapoint at 7 US cents. Such Throuughput and cost enables utilisation od DarT-based whole genome profiles in breeding.