

POSTER SUMMARY

A BIBLIOMETRICAL ANALYSIS OF REGULAR SASTA AUTHORS BETWEEN 2000 AND 2010

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Abstract

Bibliometrics involve the mapping of literature to extract, among other, research collaboration structures. In this submission a social network of all regular SASTA authors and their co-authors for the period 2000 to 2010 was generated. The social network was energised and quantitative indexes of author impact were calculated. Two distinctive clouds of authors, one for milling and one for agriculture, are visible. Smaller sub-groupings can be identified in the agricultural author cloud. It may be valuable to the sugar industry if future publications could include more milling and agriculture co-authors, especially in the fields of breeding and engineering.

Keywords: bibliometrics, authors, groupings, research, structure

Summary

Bibliometrics involve the mapping of literature to extract research collaboration structures (Newman, 2001). The annual South African Sugar Technologists' Association (SASTA) congress draws a regular group of researchers, who have over the years, published large numbers of papers and in co-authorship with many other regular SASTA attendees. The aim of this poster was to generate and discuss the co-authorship network structure that emerged over the period 2000 to 2010.

All authors who produced more than two SASTA publications during the study period were included in these analyses. A social network was generated where every node represents a SASTA author and where lines between nodes represent co-published papers. Multiple co-published papers are depicted by heavier bold lines and are printed in a darker colour. Nodes were colour coded according to the affiliated institution of the respective author.

The Kamada and Kawai (1989) transformation was executed on the network. This transformation considers the connectivity between nodes and brings nodes with stronger bonds in closer proximity to each other. Centrality depicts well positioned authors. Betweenness depicts the author's capacity to connect other authors who have not co-published. These indexes can be used to calculate a relative impact factor for each author. In addition, general deductions can be made by studying the overall structure of the network.

Conclusions and Recommendations

Two distinctive clouds of authors, one for milling and one for agriculture, appear. Few authors have co-published across this divide (cf. Figure 1). The agricultural cloud can be subdivided into smaller sub-groups based on disciplines, viz. (1) breeding and genetics, (2) crop protection, (3) soils and nutrition, and (4) agronomy and agricultural engineering. The latter two groups are more centrally located and sometimes share authorship with the milling community. The co-author structure in the milling cloud is more aligned with affiliated organisations and less with particular disciplines. The most well connected and impactful author during the 2000 to 2010 period was JH Meyer, with an impact score of 3460. He published a large number of SASTA papers, but also in co-authorship with many researchers from other disciplines. Other authors who received relatively high impact scores are A Singels (score: 1274), R van Antwerpen (score: 1210), RS Rutherford (score: 1206) and SB Davis (score: 913). It may be valuable to the sugar industry if future publications could include more milling and agriculture co-authors, especially in the fields of breeding and engineering.

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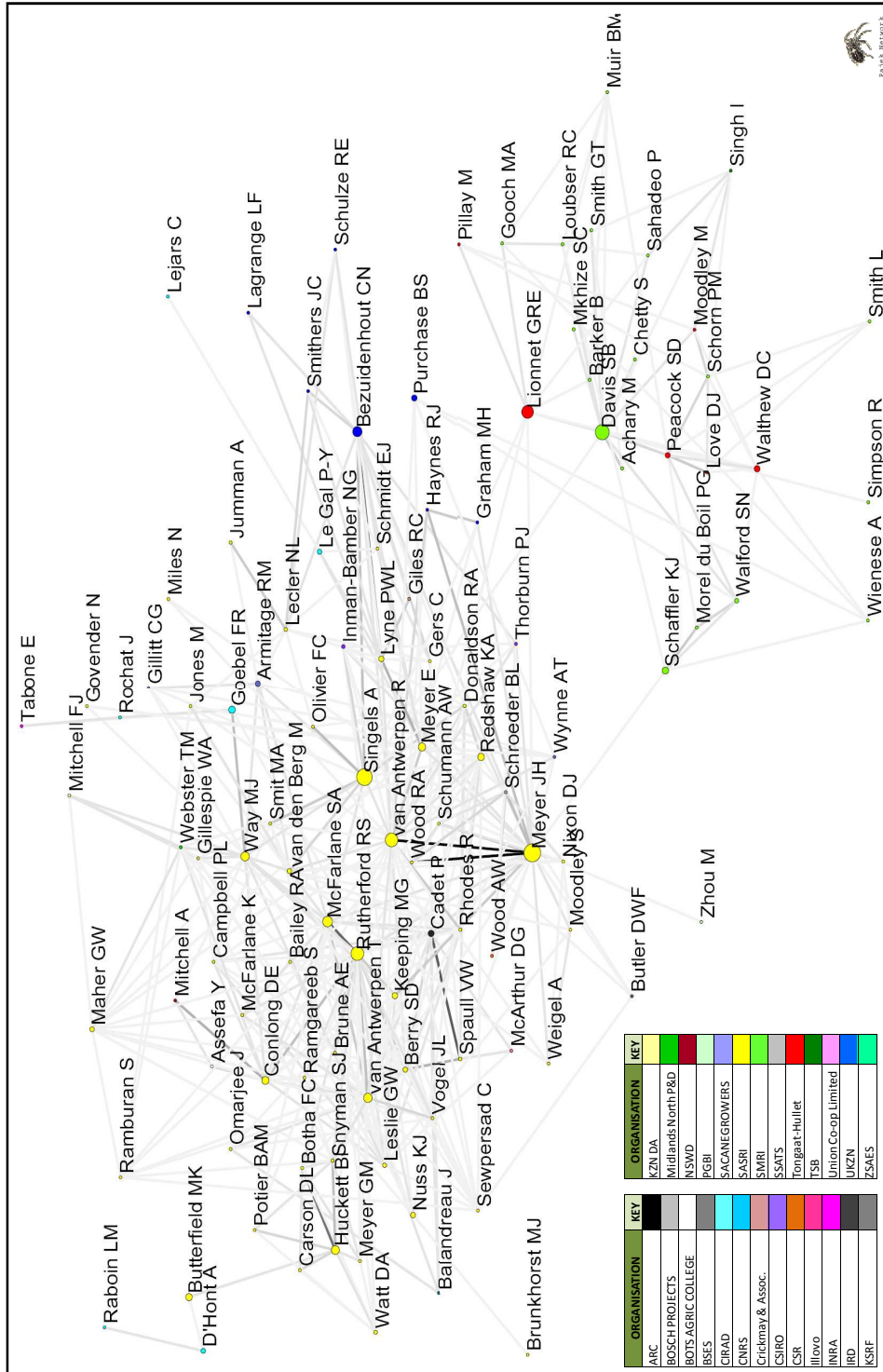


Figure 1. A Kamada-Kawai energised network of regular co-authors at SASTA from 2000 to 2010.