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Bioinformatics for vegetable breeding at Starke Ayres

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Starke Ayres is one of Africa's largest seed companies in Africa which specializes in the development of superior vegetable seed varieties. Bioinformatics forms a crucial part of plant breeding as it helps researchers gain a deeper understanding of the genetics of their germplasm. To do this, we employ bioinformatics tools and software to perform computationally demanding processes such as read alignment to reference genomes, variant discovery, genome assembly and phylogenetics among other processes. As bioinformatics must deal with large amounts of sequence data, computational resources often become a limiting factor. We have been able to use CHPC massive computational power to accelerate molecular marker discovery for several traits. These projects would have otherwise been extremely slow or not possible if we relied on desktop computers with limited memory, processing power and storge. The vast amount of core bioinformatics tools and software that is preinstalled and configured on CHPC, save a lot of time that could have been used to configure and install these software packages on our local machines. In addition, parallelization capabilities of CHPC using MPI have made data processing quicker and more efficient.

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