

INTRODUCTION OF THE CANNABIS PLANT AND OVERVIEW OF ARC RESEARCH SCOPE ON CANNABIS

Farmers Weekly Cannabis Farming Webinar

14 April 2023



By

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Research Team

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EMPLOYER

SOUTH
AFRICA
2023

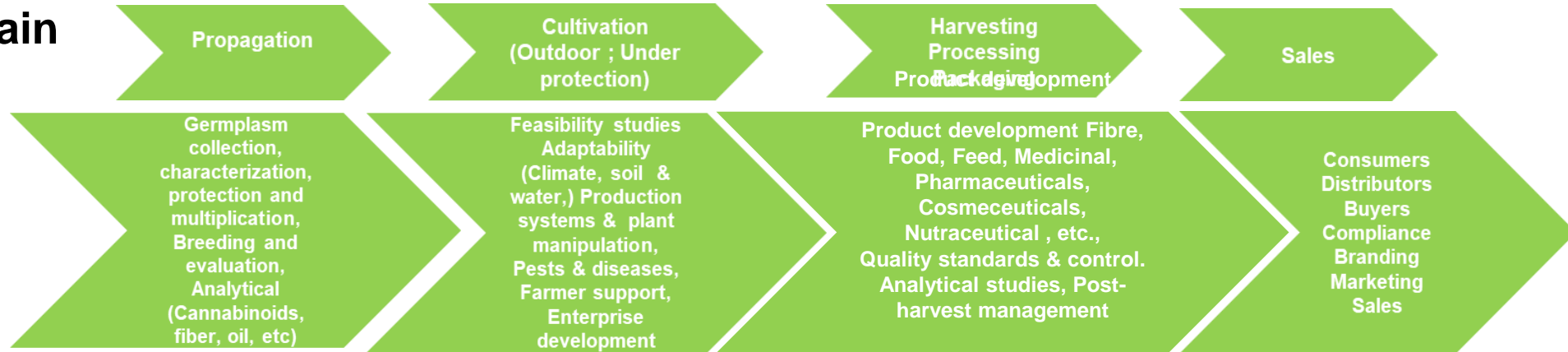
CERTIFIED EXCELLENCE IN EMPLOYEE CONDITIONS

AGRICULTURAL RESEARCH COUNCIL

CANNABIS VALUE CHAIN AND LINKAGE WITH ARC RESEARCH INITIATIVES

Value Chain

R&D



➤ Across the value chain the sector has major potential for:

- Domestic and foreign investment (primary production & exports)
- SME development, job creation & income generation
- Value addition (processing, product development)

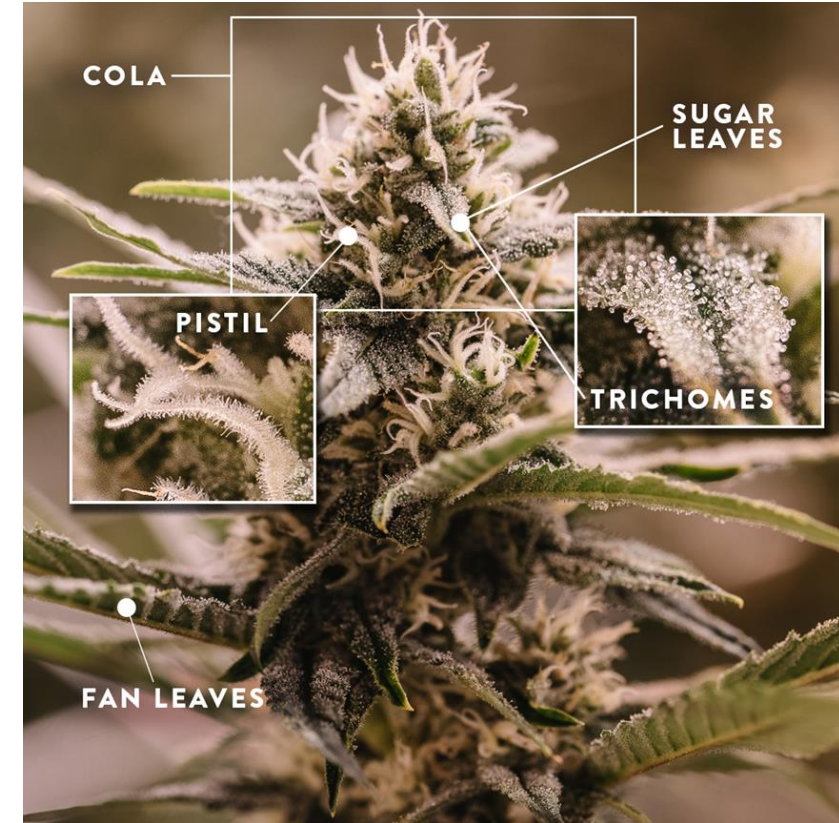
➤ The South African Government together with all stakeholders is leading the process of developing a **Cannabis Masterplan**, allowing for commercialization & industrial scale development.



ARC CANNABIS RESEARCH FOCUS AREAS

- The ARC is a **pioneer research organization on Hemp** in South Africa
- The R&D programme on hemp **started more than 20 years ago** through engagement with stakeholders from both private and public sector as well as farmers interested to cultivate the crop.
- **Two new cultivars (SA Hemp 1 and SA Hemp 2)**, which are locally adapted to South African conditions, in the process of being registered.
- **Hemp production guide** for farmer empowerment developed and **guide to support the Medicinal Cannabis** industry in process.
- The current R&D programme of the ARC covers almost the **whole Cannabis value chain** and focus on both Hemp and Medicinal Cannabis **with the immediate emphasis on Propagation, Cultivation, and Quality Assurance.**
- The ARC has already undertaken a **preliminary Value Chain-Stakeholder Analysis**, and will play a critical role to ensure sustainable production of quality materials for the industry.

INTRODUCTION TO THE CANNABIS PLANT



Kingdom: *Plantae*

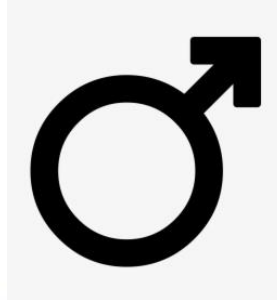
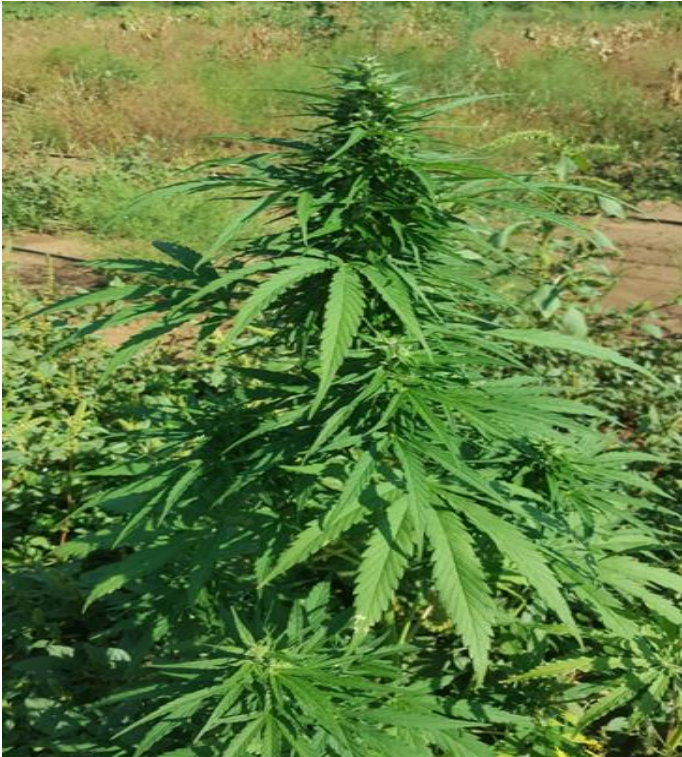
Family: *Cannabaceae*

Genus: *Cannabis* L.

Species: *sativa* L., *indica* L. and *ruderalis* Janisch

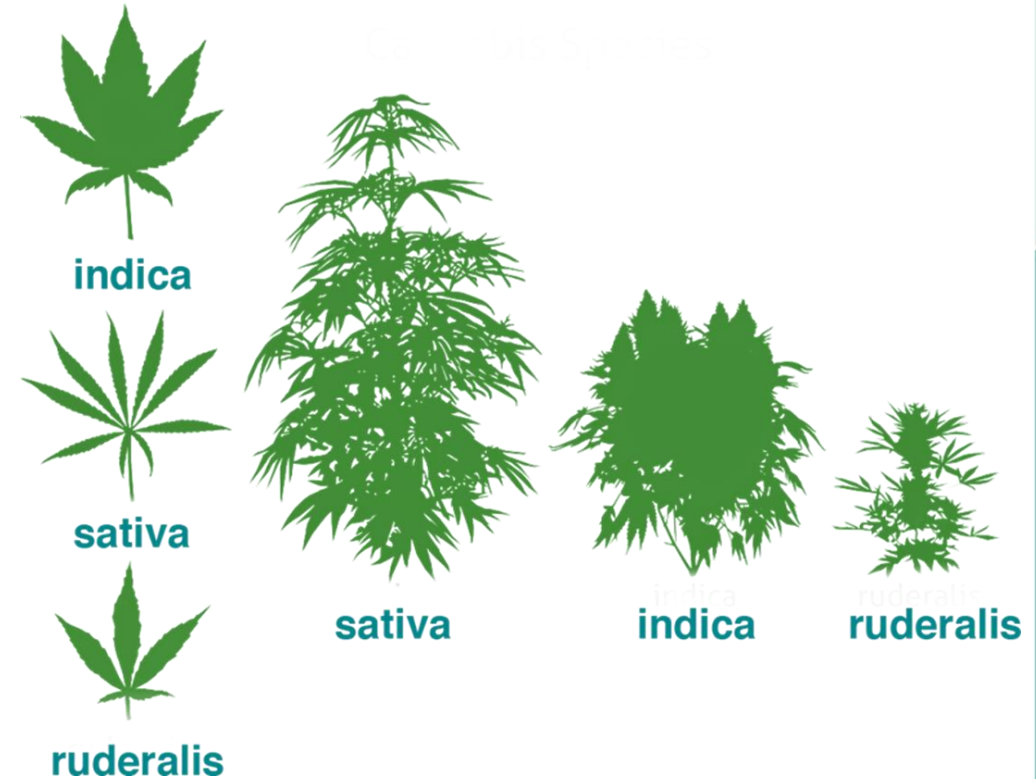
- **Annual, dioecious**, flowering herb (hermaphrodites)
- **Wind pollinated (Cross pollination - Genetic pollution)**
- **Short day plants** (*ruderalis* = day neutral)
 - **Open field production** – Day length most important factor ; Under protection?
- Biochemistry - **cannabinoids, terpenoids, etc.** secreted by **glandular trichomes** on **flower buds of female plants**
- More than 50 identifiable chemical constituents in the cannabis plant and at least 100 different cannabinoids
- Cannabidiol (**CBD**) and/or Δ 9-tetrahydrocannabinol (**THC**) produced in greatest abundance but **only THC is psychoactive** (THC:CBD for medical use) – **cultivation practices/climate effect on cannabinoid production ??**

Male, female and hermaphrodite flowers



INTRODUCTION TO THE CANNABIS PLANT

- **Hemp:** *Cannabis sativa* (many cultivars & hybrids)
 - Grown specifically for industrial use (fibre, hurd and seed)
 - Open field production – high density (fibre)
 - DALRRD permit - THC < 0,2%
 - Biomass (stems for fibre and hurd) ; hemp seed oil
 - Secondary industries to support?
- **Medicinal cannabis:** *C. sativa* and *C. indica* & Hybrids
 - Grown for supplements, medicinal use
 - Highest yield under protection
 - SAHPRA permit (THC & CBD)
 - Female flowers (CBD & others non psychoactive cannabinoids)
- **Recreational:** *C. sativa* and *C. indica*
 - **High in THC - Psychoactive:** Substances that affect mental processes, e.g. perception, consciousness, cognition or mood and emotions
 - Many local strains available – South African IP protection?



ARC HEMP RESEARCH FOCUS AREAS (Open field production) DALRRD FUNDED (2023/24)

- WP1: Identification of locally developed and imported hemp varieties **adapted to different production areas in South Africa** – import varieties with potential for local production
- WP2: **Seed multiplication** of SA Hemp 1&2, as well as other identified varieties, to increase the availability of locally adapted hemp genetic resources
- WP3: **Maintaining hemp germplasm** as seed and in tissue culture
- WP4: Establishing **hemp evaluation and demonstration trials** at ARC farms and DALRRD selected demonstration sites per Province to determine feasibility – **see pictures**
- WP5: Regular **training of hemp inspectors** to empower them to perform the inspections as prescribed in the regulations



ARC CANNABIS RESEARCH FOCUS AREAS

- WP6: Training of **permit holders during farmers days** at demonstration sites on cultivation practices of hemp
- WP7: Develop a **database on molecular markers** (SSRS) that can be used to determine diversity, cultivar discrimination and purity.
- WP8: **Research under controlled conditions** to determine the effect of biotic, abiotic factors and cultivation practices on **cannabinoid production with special reference to THC.**
- WP9: Long read sequencing of local varieties - breeding
- WP10: Cannabis breeding for medicine, fiber and other uses
- WP11: Socio-economic analysis





PROCEDURES FOR APPLICATIONS FOR HEMP PERMITS

- a. Go to your internet browser and type www.dalrrd.gov.za.
- b. Look for the link for Hemp Regulatory System under the Quick Links heading on the landing page of the DALRRD's website.
- c. Click on the link and you will be taken to the Plant Production page.
- d. All the guidelines and forms are obtainable from this page.
- e. It is advisable to read through the guidelines first before filling the forms.
- f. All completed forms and supporting documents must be emailed to Hemp.PIA@dalrrd.gov.za
- g. Supporting documents – ID copy/ies, registration of company, police clearance certificate, title deed/lease agreement/PTO, map of the farm/site and a proof of payment.

THANK YOU



Hemp permit office contact details:

1. Ms Francina Rakgahla – Tel: 012 319 6092
2. Mr Cecil Mogase – Tel: 012 319 6224
3. Ms Gloria Maboe – Tel: 012 319 6150

Registrar: PIA

4. Mr Herman Mootane – Tel: 012 319 6358