The Australian Plant Phenomics Facility (APPF) is part of Australia’s National Collaborative Research Infrastructure Strategy (NCRIS). The NCRIS-enabled APPF is a distributed network of national research infrastructure platforms offering open access to state-of-the-art plant phenomics technologies, tools and expertise, used by academic and commercial scientists.

Our purpose is to provide access to globally-leading research infrastructure and supporting services in sensing, imaging and analytics that enable impact in plant science and digital and precision agriculture.

Our aspiration is to be trusted and essential partners in driving innovation across the Australian research sector and the economy, to address grand challenges facing agricultural sustainability and food supply.
WHAT WE DO

Our capabilities support the science and practice of agriculture including plant breeding, cropping, grazing, horticulture and intensive plant industries.

### R&D SERVICE PILLARS

#### Data acquisition
Sensors, controllers, imaging, vehicles/robotics, meteorology, environmental indices

#### Data management
Ontology, standards, metadata, information systems, data sharing

#### Data interpretation
Computer vision, signal processing, machine learning, statistics, data fusion, scaling, Genotype x Environment x Management (GxExM)

#### Modelling
Dynamics of plant structure, crop & disease modelling, system performance modelling

#### Translation
Advisory/consultative, capability building, investment and adoption support

### CAPABILITIES ACROSS SCALES

<table>
<thead>
<tr>
<th>PLANT ORGAN</th>
<th>WHOLE PLANT</th>
<th>PLOT/CANOPY</th>
<th>FIELD</th>
<th>FARM</th>
<th>LANDSCAPE</th>
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<tbody>
<tr>
<td><strong>Controlled environment</strong>&lt;br&gt;Capabilities enabling interrogation of complex plant traits under controlled environment conditions.</td>
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<td><strong>Field phenotyping</strong>&lt;br&gt;Capabilities enabling non-destructive and efficient estimation of plant traits at plot and/or field level.</td>
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<td><strong>Precision agriculture</strong>&lt;br&gt;Capabilities enabling data interpretation for crop diagnosis, monitoring of crop health, real time management.</td>
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<td><strong>Landscape monitoring</strong>&lt;br&gt;Capabilities enabling monitoring of vegetation of landscape scale.</td>
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<tr>
<td>National</td>
<td>Collaborative</td>
<td>Research-enabling</td>
<td>Infrastructure-providing</td>
<td>Strategic</td>
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<tr>
<td>Nationally relevant (to Australian research and agriculture)</td>
<td>Widely accessed and valued (fees, services and high-quality that drive demand)</td>
<td>R&amp;D tools and services as enablers based on genuine needs- we fill capability gaps and address market failures, and don’t compete with others within Australia</td>
<td>Establishing physical and soft infrastructure that others can’t easily build, operate or develop (tackling high barriers to entry)</td>
<td>Delivering and partnering to position Australia as a world leader in phenomics, sensing and imaging for plant science and precision and digital agriculture</td>
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<td>Investing in initiatives and solutions that are scalable across the APPF and nationally, and that connect with national NCRIS capabilities</td>
<td>Collaboratively used by publicly funded research organisations and industry (we will service initiatives spanning these boundaries)</td>
<td>Responding to complex research challenges and making them achievable &amp; operational with our methods, tools &amp; services</td>
<td>Developing and sharing intellectual capital built on our know-how and history of problem solving to support others</td>
<td>Our knowledge, services and infrastructure shape and support major research programs and initiatives of national importance</td>
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<tr>
<td>National footprint (including through strategic alliances and work with leading publicly funded research organisations and commercial entities)</td>
<td>We partner and coordinate across the APPF and Australia to bring together the right capability and equipment for best effect (synergistic)</td>
<td>We monitor and forecast enabling technology and R&amp;D, in terms of adoption and current/ future unmet demand to better meet needs of researchers</td>
<td>De-risking future commercial and academic infrastructure acquisition or development</td>
<td>Strategically investing within the pathway to impact to achieve real-world benefit and optimum return on investment</td>
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<tr>
<td>Nationally accessible (including through our research hotel model)</td>
<td>A key entry point for international collaboration (inbound and outbound)</td>
<td>User and client needs are at the heart of our decision-making, driving our investments &amp; partnerships</td>
<td>Contributing to a national and global network of FAIR data management and analytic services</td>
<td>Enabling capability uplift and knowledge-transfer for research excellence</td>
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OUR GUIDING PRINCIPLES

Crucial to our success is how we approach our work as individuals, teams and as an organisation. We promote, support and aspire to uphold the following principles and values:

Our investments as an organisation will be strategic - driven by sector needs and priorities - and guided by our Investment Framework. The underpinning principles of that Framework include supporting research excellence and impact, de-risking technology investment and adoption by our clients, solving problems and delivering value for our clients.

We embrace accountability, and as an organisation will be accountable for delivering against clearly defined goals and developing and using systems and processes that monitor our performance and impact.

We prioritise partnerships over transactional relationships, particularly valuing large and long-term research programs addressing grand challenges.

We value our host institutions. We recognise and celebrate our mutually-beneficial relationships and seek to ensure ongoing complementarity and shared sense of purpose and value.

Our activities and investments will not prioritise, favour or unduly benefit any group, institution or company to the detriment of others. We are an equitable, national and collaborative organisation.

We recognise that expertise and capability to deliver the best services and infrastructure may exist outside of the APPF as well as within it and will partner and collaborate to ensure contributions from those best placed to provide them. Our future growth will be based on this premise.

We are ‘one-APPF’. Our actions, investments and priorities will serve the interests of the APPF as an organisation overall, and will not be the sole domain, or to the sole benefit of any one Node of the APPF.

We are all responsible for providing a safe, positive and enjoyable environment for staff, clients, partners and visitors.

Our success is influenced by innovation, creativity and continuous improvement.
OUR VALUES

**INNOVATION**
We seek creative ways to achieve our goals, and we enable innovation in others. We promote a culture of learning and improving.

**RESPECT**
We respect individuals’ values, and the corporate values of our host organisations, and encourage a culture of diversity, listening and trust.

**ENGAGEMENT**
We create connections that make a positive difference, and make decisions informed by our interactions with a wide array of stakeholders.

**PARTNERSHIP**
We believe in team-work, in sharing ideas and resources, vesting power in others, and striving for mutual benefit in our relationships.

**IMPACT**
Our culture of accountability is based on achieving value-for-money, return-on-investment and real-world impact.

**FULFILMENT**
Our workplace supports professional achievement, enjoyment and accomplishment, and rewards pride, care and commitment.
By 2023 we will have assembled the best partnership team from across Australia (from within the current APPF and beyond), to develop a compelling and winning investment proposition that ensures our continuity and expansion beyond 2023 as the NCRIS facility serving the Australian agricultural sector through phenotyping, and digital and precision agricultural science.
WHAT SUCCESS LOOKS LIKE

Government, our host organisations and investors value us

- We can provide evidence as to our impact, and our investors receive clear signals from the Australian agriculture research sector that we are necessary
- Universities and research organisations vie for the competitive advantage of hosting us
- We are deemed essential partners when it comes to defining and solving problems facing the agriculture sector through research

We are the facility of choice

- People come to us, and come back to us, because we make their lives easier - they trust, value and prefer us to alternative options
- Industry trust us to solve their problems - we are outcomes focused and agile
- We enable and facilitate research excellence and we are a catalyst for innovation
- We offer decreased barriers to entry for researchers, organisations and companies looking to tackle agriculture sector problems

We are Australian and global leaders

- The APPF is at the heart of Australian phenotyping, sensing, imaging and agri-informatics for precision and digital agriculture, providing essential services and solutions, and coordinating national responses to grand challenges
- Our actions, investments and choices become defining strategic signals across Australia and beyond - others look to us to see what we are doing
Accelerate impact of scientific research on agricultural productivity and sustainability

Measurable outcomes (KPIs)

- Growing number of ‘managed relationships’ with industry
- Growth in revenue/commissions serving near-to-market entities
- Creation of more data sets that are freely available and of national and global interest
- A quantitative evidence base of impact achieved

Actions

- Undertake a program of engagement with diverse stakeholder groups to understand and define problems and opportunities facing productivity and sustainability in agriculture
- Operate as a bridging agent between publicly-funded research and industry
- Work with near-to-market businesses to utilise our technologies and expertise
- Adjust the APPF business model to secure more investment in creation of data sets that are freely available and of national interest
- Create a portfolio of impact case studies built on a strong evidence base
GOAL

2

Invest in cutting-edge infrastructure and services that enable and accelerate Australian research and innovation

Measurable outcomes (KPIs)

- Improved usage of facilities and services
- Diversification and growth in revenues
- Proportion of our infrastructure and services that meet global novelty and excellence standards
- Academic publications underpinned by APPF services and infrastructure

Actions

- Maintain a system that seeks and responds to feedback to drive continual improvement
- Undertake global horizon-scanning to access novel technology trends and initiatives
- Develop an enabling technology master plan that supports our Strategy
- Service the academic research community to support research excellence
- Provide high-quality education and internship opportunities that benefit both academic and commercial spheres and lift national skills capacity
Build our national footprint and influence

**Measurable outcomes (KPIs)**

- Wider array of value-adding partners/ alliances
- Attracting a more diverse user/client base – geography and domain
- Improved levels of trust and utility between APPF and our stakeholders

**Actions**

- Review and improve our research hotel model to offer better access to our fixed infrastructure for those remote from our facility
- Improve in-situ access to our research infrastructure through provision of mobile infrastructure and services
- Engage in more NCRIS and Australian policy making and strategy setting
- Identify high-potential, high-value partners to jointly shape our future
Grow a sound and advancing organisation that exemplifies the NCRIS principles

**Measurable outcomes (KPIs)**

- A strong and quantifiable sense of shared purpose, with engaged staff
- Increased data linkage across the APPF
- Financial sustainability and stability

**Actions**

- Streamline activities across key APPF functions using areas of strength as exemplars
- Develop and institute a data management strategy and plan that exemplifies FAIR principles
- Manage our financial viability through an annual program of business planning, budgeting and review against the Strategic Plan and Investment Framework
- Build an engagement and business development effort that supports APPF involvement in larger scale, higher value projects