PART 1.

1. **How are we unique in the college, on campus, in the state, in the world?**

**We are the only unit on campus studying plant function and the microbial communities that interact directly with plants at the molecular, whole plant, and population (natural and cultivated) levels. This broad spectrum of expertise and approaches distinguishes us from all other plant and microbial programs nationally and worldwide.**

1. **What should we be known for?**

**a. Understanding the genetic and developmental characteristics of model experimental plants and related accessions, crop plants, and interacting microbes. Our ability to generate fundamental knowledge about plant and microbial systems and use the information to improve growth, development, and adaptation of crop plants in various environments.**

**b. World class plant and microbial faculty with broad expertise from the molecular to the whole organism to the natural and cultivated population levels.**

**c. Development and leveraging of world class genomic, computational, and bioinformatic resources (e.g., Arizona Genomics Institute, the iPlant Collaborative) for the genomic and genetic analyses of crop plants and their associated microbes. Being at the forefront in the development of resources and cyberinfrastructure needed for global efforts to understand the available genetic diversity in natural populations and applying the resulting knowledge to the improvement of crop plants.**

**d. CEAC – a unique merger of whole plant biology and engineering expertise for production of select high value commodities in controlled environments.**

**e. Rigorous, broad and flexible undergraduate and graduate programs for training the next generation of plant and microbial biologists using the vast expertise of the faculty in the school.**

**f. International collaborations with premiere agricultural institutions in emerging economic powers, including Huazhong Agricultural University in China.**

**g. Promoting translational research by fostering interactions with the Arid-Land Agricultural Research Center in Maricopa and other USDA research units focused on improvement of agricultural crops for growth in arid environments.**

**h. Success in placing our undergraduate and graduate students in appropriate positions in industry, academia, etc.**

1. **What are we known for?**

**We are known for the items in number 2, above. We will continue to build these strengths, resources, and interactions.**

1. **How are we positioned compared with others "like us" that gives us a competitive advantage and allows us to capture value?**

**We are developing excellence in genomics, computational biology, bioinformatics to add to fundamental studies of plant and microbial growth and development and adaptation to the environment. Our geographic location in an arid region and the significant effects global warming is expected to have in this region could provide us with a competitive advantage in creating niche in areas of collaborative research and allow us to tap into targeted funding opportunities nationally and globally.**

1. **How are we doing right now?**

**We are always working to be more than the sum of our parts by developing a strong shared vision, and with a strong supportive infrastructure. We hope to build on our strengths as our junior faculty develop their research programs and through collaborations (continuing and new) in the School, the University, nationally, and worldwide. In the medium to long term, we hope to build our strengths with important faculty hires that will allow us to understand processes underlying plant biotic (microbe) and abiotic interactions. Faculty hires might include individuals with expertise in: 1) plant signaling and gene regulation of plant perception and response to microbes, 2) the use of genetic and genomic resources to improve the disease resistance and drought tolerance of crop plants, 3) how to exploit natural variation to develop new crops and model plants for crop improvement, 4) understanding microbial populations that are beneficial or detrimental to the growth of crop plants.**

**As a group we feel that we will be able to leverage our scientific productivity in the form of IP/patents that benefit the individual investigator and the University with additional resources and expertise from the University in areas of technology transfer and business development and strategic planning. Through collaborations between basic and applied faculty, license some of our discoveries.**

**As we continue to take on significant teaching responsibilities in Plant Sciences, Microbiology, Molecular and Cellular Biology, and Biochemistry courses, and especially responsibilities in high enrollment courses, we hope to have increased support from CALS in the form of teaching assistantships and administrative support required for managing and handling these courses.**

1. **What are we doing that is:**
2. **Essential and positive,**

**As a unit, we believe that nearly every activity in which we participate is geared towards the success of individual faculty members in research, teaching, extension, and outreach and that all of these activities contribute substantially to the strength of the unit , the College and the University. We are focusing our activities on:**

**(1) Expansion of our undergraduate program by: a thorough program assessment, revision of our undergraduate curriculum, implementation of a faculty mentoring program for our undergraduate majors, and participation in novel and creative outreach activities (for example, Plant Science Family Night and the Tucson Math and Science Fun Fest).**

**(2) Development of new undergraduate courses for non-science students to draw more students into the plant sciences.**

**(3) Identification of stable sources of financial support for graduate students.**

**(4) Working to recruit and retain world class Faculty.**

**(5) Maintaining continuous funding for our research programs by applying for and receiving individual investigator awards and collaborative multi-institutional awards (for example, plant and microbial genome grants).**

**(6) Supporting and enhancing a nationally/internationally known seminar program that allows interaction with leaders in the fields of plant and microbial biology.**

**(7) Generating a continuous flow of high impact publications that define our specific fields of research.**

**(8) Outreach to our disciplines. Our faculty members are active in many extramural activities including organizing national and international meetings, influencing funding through participation in grant review panels and as program officers for federal agencies.**

1. **Essential and neither positive or negative,**

**We feel that a number of reporting activities, while essential, do not necessarily help in strengthening and focusing on our essential and positive functions (listed in section 6a).**

**Essential but negative,**

1. **Not essential but positive,**
2. **Not essential and neither positive or negative,**
3. **Not essential and negative.**
4. **What deliverables must be maintained?**

**Expansion of our undergraduate program**

**Funding for graduate students**

**Retention of world class Faculty**

**Our research funding**

**Our seminar program**

**Publishing in high impact journals**

**Outreach to our disciplines, community, and state**

1. **What deliverables must be enhanced?**

**Most of the deliverables indicated in item #7. Priority should be given to the expansion of our undergrad program, funding for grad students, expansion of our research funding and publishing. We are developing ideas for creation of new undergrad majors that can be managed through our program solely or in collaboration with other units in CALS. For example, some faculty members have proposed establishment of a Biotechnology degree program with three emphases immediately (General Biotechnology, Plant Biotechnology, and Microbial Biotechnology) and perhaps expansion to Animal Biotechnology later.**

**9. What do we do that should be discontinued or modified?**

**As a faculty, we want to enhance research communication within the school. This might be done through School research retreats, organized faculty research interactions, and the development of a school journal club.**

**10. What resources exist in our team, Unit, CALs, UA, the world at large that can help us?**

**Great growth facilities (CEAC, growth chambers, > 2,000 acres of irrigated farm land, plant and mycological herbaria, molecular core facilities). Our enthusiastic, creative, and committed faculty and staff. Collaborations with other departments (e.g., the Arizona Biological and Biomedical Sciences graduate recruitment).**

**11. What are we passionate about?**

**Maintaining our identity as a leading program in plant and microbial biology.**

**12. What are our positions versus our competitors that give us a (unfair) competitive advantage**

**and delivers value?**

**We appreciate the long term commitment on the part of the University and particularly CALS to maintain and support our unit and believe this support has helped and will continue to help us be successful in delivering world class research and bringing in research funding.**