**Precision Agriculture for Development (PAD)** is a global non-profit that harnesses technology, data science and behavioral economics to target information to farmers in developing countries and improve their lives. By providing actionable information to the right people, in the right way and at the right time, PAD empowers smallholder farmers to improve their productivity, increase their profitability, and advance environmental sustainability. PAD aims to empower 100 million farmers through a new model for agricultural extension: delivering to farmers personalized agricultural advice through their mobile phones. We implement this model in collaboration with partner organizations to maximize scale, and we continuously experiment, iterate, and gather evidence on impact to improve our services. At the end of the Q3 2019, PAD had reached 2.9 million farmers through a range of services providing tailored information on optimizing multiple crops, pest management, input utilization and environmental stewardship. PAD currently works in seven countries in Africa and Asia and is rapidly expanding as governments and organizations look for innovative ways to utilize new technologies to deliver actionable information to people who need it.

**The issue:** Households engaged in smallholder farming collectively account for more than two billion people - almost a third of humanity and two-thirds of the world’s poor. An immediate and direct cause of smallholder poverty is what is known as the yield gap: the difference between potential and actual on-farm production. Smallholder farmers typically harvest 30 to 50 percent of what their land can produce. Climate change presents an existential challenge and risk, particularly for farmers who rely on rainfed cultivation. Studies suggest that small changes in agricultural practices can substantially improve productivity and profitability, reduce poverty and increase resiliency. Traditional agricultural extension confronts many challenges: in-person information sharing is expensive, contact with farmers is irregular, and advice is difficult to customize and deliver on time. Despite significant resources supporting the work of over one million extension workers, most farmers continue to lack the advice they need to close the yield gap and maximize their incomes.

**Our approach:** We are optimistic. For the first time, most smallholder farmers own mobile phones and are in a position to use digital agricultural advisory services. PAD leverages this opportunity to empower farmers with relevant and customized information, delivered at low cost, to improve on-farm practices, input utilization, pest and disease management, climate and weather resilience, environmental sustainability, and access to markets. We provide a two-way flow of information that delivers customized advice to farmers through mobile phones.

1. **We deliver** simple and effective messages that farmers can understand and act upon. We draw on behavioral economics to more effectively influence farmer behavior, and social learning theory to facilitate diffusion of information across farmer networks.
2. Our systems allow us to customize messaging to ensure that information is useful, timely and actionable. Big data and machine learning techniques allow us to tailor information at scale. Our goal is to develop intelligent platforms that provide farmers with context-relevant and personalized agricultural recommendations to improve productivity, profitability, and advance environmental sustainability.
3. Our interventions are evidence-led. We develop systems that are continuously monitored and constantly improving. PAD’s interventions draw on the power of new research methods that allow us to upgrade content and service delivery in near real time, to further improve user experience and deliver more appropriate information. The use of rigorous assessment tools allow us to systematically understand impact. We feed this information back into our model to refine it over time.
4. **Working through partners** who are already providing services to farmers at scale – including governments, NGOs, and for-profit agribusinesses – allows PAD to rapidly reach scale, with extremely low customer acquisition costs and rapidly falling marginal costs per farmer per year.