The security of your harvest in YOUR hands

Agriculture today faces unseen challenges: climate change produces new and extreme environmental conditions on the fields, new resilient crops demand for innovative management practices, and global markets create rapidly changing opportunities to make a living on cash crops.

As a result, 15-30% of the world wide harvest is lost annually due to plant diseases and pests – creating threats to the survival of subsistence farmers in many countries. Often, the knowledge for fast detection and treatment of plant damages is missing on the ground, which leads to expensive and resource-intensive disease management.
Assisting farmers with artificial intelligence

PEAT believes in the capacity of artificial intelligence to assist decisions and lift human capacities to a new level. We train self-learning algorithms to detect plant damages automatically with the help of a simple smartphone picture. Farmers all over the world can take a photo of their problem, send it to our servers – and receive a testing result within seconds, combined with comprehensive information on preventive measures, chemical and biological control options.

Machine Learning is almost as old as modern desktop computer and same holds true for the majority of all learning algorithms that are currently used in production. The big game changer in here is the exponential increase in computing power, mainly driven by parallel computing approaches on thousands of graphic processing units (GPU).

Artificial Neural Networks are one special type of machine learning algorithms and have also been invented several decades ago, but GPU driven computation allows to train bigger and deeper Neural Networks (DNNs) which lead to significant improvements in all classification tasks - whether it be natural languages processing, speech or image recognition.

A new standard for the automated recognition of plant diseases

PEAT built up its own IT infrastructure and image database with more than 45,000 pictures with the help of their crowd-sourcing app “Plantix” and in cooperation with their partners. PEATs image database is growing day by day, simply by classifying plant damages and solving problems for thousands of users every week. This makes PEAT today the most advanced image recognition software developer for plant protection worldwide.

PEAT empowers farmers to select the right treatment to protect their harvest.
Smart farming for a sustainable future

The possibilities for the application of this software are almost limitless. PEAT strives to support farmers on all scales with their disease management. Their first product is the smartphone application Plantix, which offers small scale farmers and gardeners the possibility to receive fast and customized decision support directly on their mobile phone. Plantix allows to digitalize the time-consuming and expensive rural extension support based on experts. PEATs database contains already today information on 52 crops worldwide and 160 plant diseases, pests and nutrient deficiencies.

And the best thing: It grows with every picture they receive! This kind of crowdsourcing science project is the first of its kind in the field of smart farming and was launched with great success in Germany in 2015.

In addition, PEAT will develop software for large scale agricultural machinery - tractors etc. Empowered by PEATs technology, this smart agricultural machinery will substitute the slow and workforce-intensive manual disease control - this allows faster and targeted treatment of first symptoms of diseases. Smart tractors will scan every inch of a field and give site-specific diagnosis as well as instructions based on the results of the automated plant disease detection.

Plantix

Plantix is multilingual – already today, versions in English, Portuguese and French exist and a Hindi version is upcoming. The team will develop features facilitating the use for non-literate people and for the reality test in rural areas, offline features will complement the many online possibilities to interact with PEATs experts. This will enable people in remote areas to use the tool on their fields while getting a diagnosis as soon as they are connected to wifi.
New opportunities for small scale farmers in India

Chaitanya Ghandi owns a farm in Maharashtra, India. In order to solve performance problems with his water melons, he researched online and found Plantix.

"I live in Maharashtra state and the name of the place is Karmala which is in Solapur district. I have recently downloaded your app. Its a great idea. Its like a portable lab."

Together with Chaitanya, PEAT's plant pathology experts detected a calcium deficiency and recommended adequate fertilization in order to increase Chaitanya's water melon production. He used Calcium Nitrate to fight the deficiency symptoms and was happy to see the changes on his fruits.

Soon however, a new symptom was detected on Chaitanya's and his neighbor's fields.

Green mottling and curled leaves can be signs of the Cucumber Green Mottle Mosaic Virus, a dangerous virus infection that has already done considerable damage to horticulture industries in Europe, Asia, but also in the USA and Europe.

Since rural extension coverage is poor in Chaitanya's region, the fast advice via Plantix supported his first doubts on affected leaves and he sent it to be checked in a laboratory. If the virus affection is going to be confirmed, immediate action is required in order to protect his and his neighbor's production.

Chaitanya continues to share pictures of his crops with Plantix and exchanges local best practices on disease management.
Mission
Plant diseases and pests still destroy up to 30% of the worldwide harvest every year. Livelihoods and wellbeing of millions of families are threatened. We take on this challenge. For a secure harvest today and tomorrow.

Vision
We believe that smart agriculture is the way to a world in which gardeners and farmers can produce healthy crops without damaging our environment. PEAT builds the largest database on plant damages worldwide in order to use artificial intelligence and image recognition software to help farmers, small holders and gardeners to protect their plants.
Digital Plant Disease Guide

Plantix contains a comprehensive library on plant diseases, nutrient deficiencies, and pests.

**STEP 1**
Choose a crop

**STEP 2**
Take a picture

**STEP 3**
Get a result within seconds

**STEP 4**
Browse through our library

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**Symptoms**
Plantix offers detailed symptom descriptions to empower farmers to take autonomous decisions on their disease management.

**Triggers**
How do diseases spread? Plantix offers insights on the start of every infection and gives hints how to avoid them.

**Treatments**
Once the problem is detected by our algorithms, you find recommendations for treatments - with a special focus on biological control mechanisms.

**Preventive Measures**
Fight plant diseases before they attack! Plantix advises on preventive measures based on local best practices as well scientific findings.
Automated disease recognition based on a picture? How does that work?
Every plant damage produces a very unique optical pattern. Our software learned to differentiate between more than 30 optical patterns and helps us in detecting plant diseases, nutrient deficiencies and pests automatedly. And with every picture we receive, our algorithms get better.

Is Plantix an App for Germany?
Plantix was developed in Germany by people that are at home in the world. We started in 2015 in Germany and today receive pictures from Africa, Asia and Europe every day.

How much does Plantix cost?
Plantix is available for free in the Google Playstore.

What is unique about Plantix?
The largest structured database on plant damages and the efficiency of self-learning algorithms make Plantix a unique project.

What can Plantix do for its users?
Plantix is your constant companion on the fields. Easily accessible on your smartphone. Compact help that fits in your pocket.

How does PEAT ensure the quality of its testing results?
Our experts check every single picture and identify it during the establishment of our detection software. That is how we ensure that only 100% correct data enters our database.

Mapping the distribution of plant diseases
With the help of the data we receive via our software, we can detect the ways different diseases spread and display them in geostatistics and maps.

Prognosis
In the future, PEAT will give prognosis of crop shortfalls and install early warning systems based on our large database.

Geodata
Through the linkage of our ground data with other geodata, we can create crucial new insights on the interaction of geo factors and plant diseases.
The Founders

We are seven friends that want to shape our common future. Together we are PEAT, a progressive young company that tackles the complex challenges of sustainable agriculture in a new way.

**Korbinian Hartberger – Communication**
Korbinian’s area in PEAT is communication - he is our language expert. He feels at home in English, Spanish, Portuguese, French and Italian. And as international as Korbinian himself are his cooking skills - he is a passionate cook and loves to share the results.

**Robert Strey - Programming**
Rob sits at the interface between ecology and machine learning within PEAT. He prepares the food for thought of our beloved algorithms and finally pushes the button to train them. He speaks fluently Python, Java, SQL, R and sometimes English with his Linux.

**Alexander Kennepohl – Plant Pathology & Data**
Alex is our expert for plant diseases and databases. His expertise in geographic information systems (GIS) helps PEAT to develop our geostatistics and maps. In his free time, Alex loves to go climbing.

**Simone Strey - CEO**
Simone is a geographer specialized in geobotany and soil science - and our CEO. There is no land where she does not feel at home, be it the Mongolian steppe or the Brazilian rain forest. When she wants to relax, she likes to beat the steel drums, a hobby that is like herself: full of energy.

**Bianca Kummer – International Cooperations**
Bianca studied engineering for landscape planning and recently graduated from the renowned Center for Advanced Training in Rural Development (SLE). She has working experience in the Gambia, Haiti and Mali. In PEAT, she coordinates local cooperations of PEAT in different African countries and when she calls it a day, a glass of wine with friends is her favorite option.

**Pierre Munzel – PR/Marketing**
Have you heard about PEAT before? It was Pierre for sure. He is socially medial, always up to date and loves sharing: with style and passion. In PEAT, he is responsible for public relations, administration and legal issues.

**Charlotte Schumann – Knowledge Management**
Charlotte is responsible for international cooperations and knowledge management in PEAT. She recently finished her PhD in Social Anthropology and currently secures the quality of PEAT's overall claim to engage in an empowering dialogue with farmers worldwide. Charlotte is a passionate traveler, lately to the Brazilian rainforest.

**Bianca Kummer – International Cooperations**
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How does a company live on a free App?
Currently PEA T is financed by the renowned EXIST fund supporting excellent German Startups. After spending some time in the Merck Accelerator in Darmstadt, PEA T is currently looking for investors that share our passion for agriculture, technology and democratizing knowledge. Apart from Plantix, PEA T offers its software in application interfaces that can be adapted to specific customer needs and wishes. In the long run, PEA Ts software will equip e.g. smart farming machinery or greenhouse cameras. Plantix yet will always stay for free for small scale farmers.

What does PEAT do?
PEAT combines agroecology and machine learning. The first goal is to build up the world's largest data base on plant damages and use this information in a variety of technologies serving large and small scale farmers worldwide

In which countries does PEAT work?
Besides Germany, Plantix is going to be published in 2016 in Mali, Kenya, India and Brazil. More countries will follow for sure..

Where does PEAT want to go?
We want to put the safety of their harvest back in farmers' hands. Therefore Plantix shall be published around the globe and our database shall be widened to serve the different problems of large scale farmers in Brazil, gardeners in Europe, or small scale farmers in India or Mali - all that is needed is an application equipped with a camera that has access to internet. PEA T is looking for partners to extend our services and provide our services worldwide. Together we can offer new options for the smart agriculture of tomorrow.

Stats & FAQs

Over ⅔ of India’s 1.2 billion people are employed in agriculture.
IBEF 2016

India’s agriculture is characterized by a growing disparity between ownership and operational holding, 1.6% of farmers hold 17% of the total land.
QUORA 2016

World Bank mentions India’s lack of good extension services as one of the major obstacles for a productive agriculture, which is not surprising considering the usual ratio of 1 extension professional assisting 2,000 farmers.
World Bank 2008

Indian agriculture loses $500 billion every year because of crop losses due to pests and diseases.
Associated Chambers of Commerce and Industry of India

In 2013, over 45,000 t of pesticides were consumed in Indian agriculture.
Krishijagran

The main use of pesticides in India is for cotton crops (45%), followed by paddy and wheat.
Aktar/Sengupta/Choudhury 2009

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Basic Information

Who?
The founders of PEA T have known each other for years and are connected through long lasting friendship and team working experience. They are united by their common interests and beliefs in different fields related to sustainable land use. Within PEA T, they combine their know-how to create intelligent solutions for the smart agriculture of tomorrow.

How?
PEAT builds the largest database on plant damages worldwide. With the help of artificial intelligence, they set a new standard for the automated detection of plant damages. PEATs uses cutting edge ICT instruments to bring this benefit to farmers – worldwide.

Why?
What is the question every farmer, no matter of what scale and in what country asks him or herself? They all wonder if their plants are doing well! During their studies and work, the founders were confronted with this question again and again. Thats when the idea to detect plant damages automatically was born in order to help farmers and gardeners worldwide to detect and treat damgaes timely: For a smart agriculture that minimizes crop shortfalls and uses pesticides only where they are needed.

What?
Plantix is an App that provides guidance on over 170 plant damages worldwide. Apart from detecting your problem, you can get tailor-made options for treatment. Plantix is a mobile decision-support tool for small scale farmers and extension professionals worldwide. Over 30 damages can already be automatically tested and this number is growing every week. Its German sister, “GartenBank” was downloaded more than 30,000 times in 2015.

Where and When?
Plantix is a registered trademark of PEAT UG (limited liability) seated in Hanover, Germany. The company was created in November 2015, and the German version of „Plantix“ went online in May 2015. In 2016, adapted versions exist for India, Kenya, and Brazil. Plantix wants to support farmers in every country.
We invite you to do a reality test!

Download Plantix now and take a picture of these two nutrient deficiencies on tomato. If you have the time, print it to get the best results.

Once connected to Wifi, Plantix will give you a fast result and precise guidance on options for treatment.
LET’S TALK!

Follow us on:

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