

# Quick Start Guide: OpAgri

Authors: Jingqiu Chen<sup>1</sup>, Ben Hancock<sup>1</sup>, Katy Mazer<sup>1</sup>, Laura Bowling<sup>1</sup>, Dharmendra Saraswat<sup>1</sup>, José Pinto<sup>2</sup>, & Bernie Engel<sup>1</sup>  
<sup>1</sup>Purdue University, <sup>2</sup>la Universidad Nacional de San Agustín



UNSA  
UNIVERSIDAD NACIONAL DE SAN AGUSTÍN DE AREQUIPA

PURDUE  
UNIVERSITY

Discovery Park

The Agricultural Optimizer tool, or OpAgri, can help farmers in the Colca Valley, Peru, make decisions about what mix of crops to plant to maximize profit when water is limited. It can be used to:

- Compare the water needs of up to four different crops;
- Evaluate if there is sufficient access to irrigation water for an entire season; and
- Calculate the expected profit for different areas of planting.

## Getting started: The Map Tab

OpAgri can be accessed at <https://www.agry.purdue.edu/hydrology/projects/nexus-swm/crop-mix-planning-tool/>, and it is also available as a phone app in the Google Play store. To start, if location services are turned on, the closest weather station in Colca Valley will be automatically selected, but you can change the selection on the Map tab or choose whatever location you wish within the red boundary.

Planificación de mezcla de cultivos

Selección de la estación mas cercana

Map Satellite

The selected weather station is displayed here

Click here to select your weather station

Selección de la estación: Madrigal

Terreno disponible para sembrar

Selección de la unidad (ha)

Enter the land area available to plant

Change the units of land area here

UNSA

PURDUE UNIVERSITY

Discovery Park





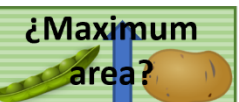
## Additional input tabs

On the next several tabs you will define your access to water and the crops that you are interested in. Note that you cannot advance to the next tab until you have defined each required input.

- Water access tab – Enter the number of times per month that you have access to irrigation water, how long you irrigate in each session and your best estimate of the rate of flow of the irrigation water.
- Crop selection tab – Select up to four crops that you would like to compare by clicking on the box to the right.
- Market price tab – The boxes have default values for the expected sale price of your crops in Soles per kg. Click next to accept these defaults, or add your own values.
- Cost to plant tab - The boxes have default values for the expected cost of all inputs needed to plant each crop, including seed, water, fertilizer and pesticides in Soles per ha. Click next to accept these defaults, or add your own values.
- Crop yield tab - The boxes have default values for the expected yield of each crop in kg per ha. Click next to accept these defaults, or add your own values.

## Planting scenarios and custom planting areas

The next section of the tool describes the five different planting scenarios evaluated. You can click on each title to see a more complete description.

<p><b>Scenario 1:</b> Land is divided equally for all crops.</p> 	<p><b>Scenario 2:</b> The user decides what percentage of land to dedicate to each crop.</p> 	<p><b>Scenario 3:</b> Prioritizes profit, but it does not consider changes in the market.</p> 	<p><b>Scenario 4:</b> Prioritizes profit, but limits planting area for each crop to ¼ of total land.</p> 	<p><b>Scenario 5:</b> This is like scenario 4, but the user decides the maximum area to plant.</p> 
--	--	---	---	--

The next two pages allow you to define custom percentages of area planted to each crop.

**Planificación de mezcla de cultivos**

**Porcentaje fijo personalizado de plantación**

Descripción del escenario 2  
(Porcentaje fijo personalizado de siembra)

Arveja (%)

Maíz (%)

Papa (%)

Quinua (%)

Para el escenario 2, ingrese el porcentaje de siembra de los cultivos seleccionados entre 1 y 100 por debajo de 100%, 100%

For Scenario 2, you can specify how much of your field will be planted to each crop. These percentages must add to 100%.

**Planificación de mezcla de cultivos**

**Área de plantación personalizado (%)**

Descripción del escenario 5  
(Optimización de plantación de área personalizada)

Para el escenario 5, coloque un número entre 1 y 100 a continuación para representar el porcentaje disponible que se designará para un cultivo en el proceso de optimización.

Arveja (%)

Maíz (%)

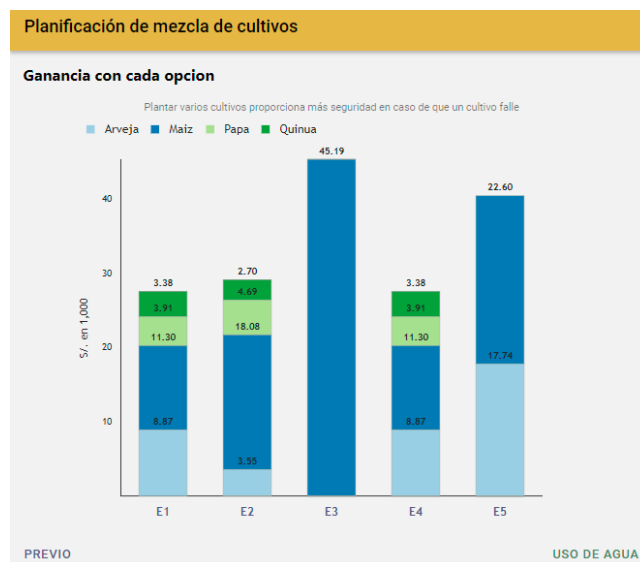
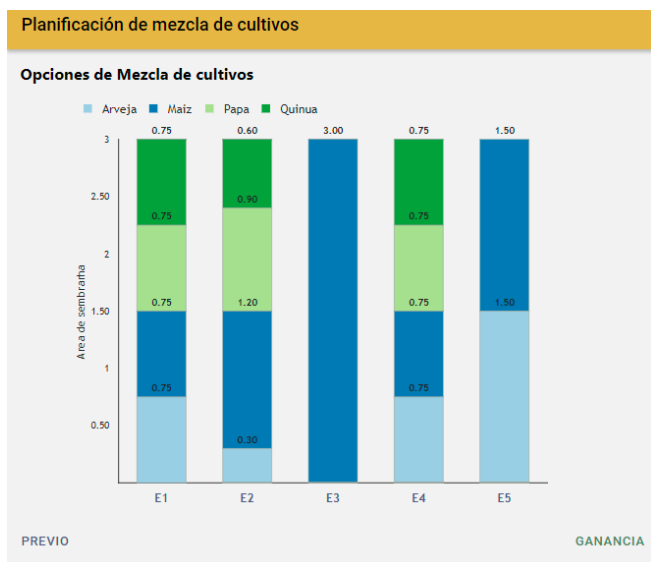
Papa (%)

Quinua (%)

For Scenario 5, you can specify the maximum amount of your field that you want to plant to each crop. These percentages do not need to add to 100%.

## Results

There are four results tabs that provide a comparison of each planting scenario by area, cost, crop water use, and irrigation need.



## More information

For more information about this tool, you can refer to the OpAgri user's manual.

You can access this resource, our tools, and other information pertinent to the SWM team on our website at [https://purdue.ag/nexus\\_tools](https://purdue.ag/nexus_tools).

## CONTACT

For more information about the developers, this, and other tools developed by the Sustainable Water Management team of the Arequipa Nexus Institute, contact us at [nexus-swm@purdue.edu](mailto:nexus-swm@purdue.edu).