



PASO (Precision Agriculture Service Office) Business Plan

**Erasmus+ Project
New and Innovative Curricula in Precision Agriculture / (NICOPA)
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S. Seifullin Kazakh Agrotechnical University

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Introduction

Precision Agriculture Service Office: Mission and objectives

Mission: The main mission of the PASO office is to create conditions to ensure the sustainability of the project results after its completion and the receipt of funds to maintain the functioning of the office and its further development

Tasks:

- Analysis of the compliance of competencies/skills of agricultural graduates with the requirements of employers;
- Marketing of the educational services market;
- Marketing analysis of the labor market in the region;
- Establishing contacts with industry representatives, enterprises, research centers, government organizations, and institutions;
- Analysis of the requirements of potential employers;
- Marketing needs in the field of implementation and use of precision farming technologies;
- Development and implementation of training courses and/or advanced training different target groups;
- Analysis of the needs of agricultural enterprises in professional training for the agricultural industry, search for interested organizations;
- Development of questionnaires for agricultural organizations to determine expectations and requirements for potential employees (for example, graduates, students, future students, students, and other social groups)
- Providing information support.

Section 1. Summary of the business idea

Akmola region is one of the main agricultural regions of Kazakhstan; 38% of the region's working population is employed here. The region's share in the republic's gross agricultural output averages about 10%. The region plays the role of the food belt of the city of Nur-Sultan.

Akmola region is an agrarian-industrial region focusing on processing agricultural products (74% in the manufacturing industry).

The main agricultural products of the region are grain crops, the sown area of which in the region is the largest in Kazakhstan - 4.3 million hectares or 27.9% of the total sown area in the country. In the sectoral structure of agriculture in the region, crop production predominates - 64.6%.

According to studies, agriculture in the Republic of Kazakhstan and the Akmola region is experiencing a serious shortage of personnel. Thus, regarding the need for specialists, this sector is second only to construction, manufacturing, and education. In 2023, this figure was 6 thousand people.

The agro-industrial complex is one of the important sectors of the economy, which shapes the food and economic security of the country, as well as the labor and settlement potential of rural areas.

Kazakhstani agricultural industry experts note the “growing demand for digitalization” as an important industry trend, the agricultural industry's request for technological renewal, the need for a new generation of specialists and workers in the industry, and a course towards greening.

All of the above determined the relevance of the functioning of the PASO office at S. Seifullin Kazakh Agrotechnical University.

The uniqueness of the business idea lies in the fact that there is a need to constantly familiarize the target audience, consisting of students and undergraduates in agricultural specialties, teachers of specialized disciplines, as well as agricultural producers, with modern precision farming technologies in the production of crops to obtain maximum yield, minimize capital investments, maximize financial benefits and minimizing environmental impact.

Section 2. Brief Description of Products and Services

The PASO office will provide the following consulting and educational services to students and undergraduates of agricultural specialties, teachers of specialized disciplines, as well as agricultural producers of the Akmola region:

- analysis of the compliance of competencies/skills of agricultural graduates with the requirements of employers;
- marketing of the educational services market;
- implementation of marketing analysis of the labor market in the region;
- analysis of the requirements of potential employers;
- marketing of needs in the field of implementation and use of precision farming technologies;
- development and implementation of training courses and/or advanced training different target groups;
- analysis of the needs of agricultural enterprises in professional training for the agricultural industry, search for interested organizations;
- Providing information support.

Section 3. Competitor analysis

S. Seifullin Kazakh Agrotechnical University is one of the leading agricultural universities in Northern and Central Kazakhstan where specialists in the field of agriculture train.

Accordingly, the PASO office, operating based on S. Seifullin Kazakh Agrotechnical University, the level of competition in the market for educational and consulting services in the field of precision agriculture in the Akmola region is low.

Section 4. Target market analysis

In the process of analyzing the target market, potential clients of the PASO office were identified and grouped into three groups of listeners:

- workers of agricultural enterprises, farmers;

- undergraduate, graduate, and doctoral students in agricultural fields of study;
- university teachers

Section 5. Marketing section of the business plan

Services will be provided primarily for agricultural producers producing agricultural products, as well as operating in rural areas. This activity is promising, since competition in this area is still low, and the need for services is high.

The marketing strategy of the PASO office is aimed at increasing the volume of services provided by maintaining a high quality of services provided. Thus, the required level of profit will be maintained due to the unique offer on the market of courses and training, which will keep prices at a sufficient level without trying to reduce them.

To ensure a sufficient flow of clients, the head of the PASO office plans to enter into partnerships with other partner universities of the consortium, and it is also planned to attract specialized agricultural colleges. A separate point is to increase the recognition of the PASO office through promotional events.

A SWOT analysis of the position of the PASO office in the market of educational and consulting services was conducted (Table 1).

Table 1 - A SWOT analysis of the position of the PASO office in the market of educational and consulting services

	Positive influence	Negative influence
	Strengths	Weaknesses
Internal environment	Availability of a strong teaching staff	The customer base has not been formed
	The customer base has not been formed	
	The presence of teachers with extensive practical experience in production among the teaching staff	

	Convenient location of the PASO office in the main building of the university in the city center	
External environment	Opportunities	Threats
	Development of promising new courses	Competition

Section 6. Production section of the business plan

The PASO office is located in the building of the Technical Faculty of S. Seifullin Kazakh Agrotechnical University on the second floor, room 4201.

The PASO office staff member is a full-time university faculty member.

The PASO office is equipped with equipment purchased with project funds and placed on the balance sheet of the university (Table 2).

Table 2 – Equipment installed in the PASO office

Name	Quantity, pcs.
Smart board (Smart Board, SMB685 (included projector Smart V12)	1
Monoblock (All in one DELL Inspiron 7700, 27”, Intel Core i5 1135G7, 8ГБ, 512ГБ SSD, NVIDIA GeForce MX330-2048 Мб, Win10 Pro)	11
Laptop (Mobile workstation DELL G15, 15.6’, Intel Core i7 10870H 2.2ГГц, 16 Гб, 1Тб SSD, NVIDIA GeForce RTX 3050 Ti-4096 Мб, Windows 10)	1
Printer (Color MFD A3, Epson L1300)	1
Printer (Monochrome MFD A4, HP MF 443dw)	1
Backup data storage (Personal Cloud Storage, Zyxel NAS326 (2*10Tb HDD)	1
Camera (Digital Camera (Kit), CANON EOS 4000D)	1
Smart TV (Smart TV, Samsung UE55TU7090UXRU)	1
Uninterruptable power source (UPS, SVC-V, POWERCOM Raptor RPT-2000AP LCD)	1
Network switch (24 port Gigabit Switch, HPE OfficeConnect 1820)	1
Sensor (IMETOS® IMT280 base station with precipitation gauge, air temperature and humidity sensor (hygroclip), anemometer (mechanical), pyranometer)	1
Sensor (ECH874EXT External interface for connecting 1x soil water volume sensor from Pessl Instruments or Meter Group, 4x Watermark tensiometer sensors + 1x soil temperature with 5m cable)	1

Sensor (SEN-SDI12 Internal interface for connecting 2x profile sensors for volumetric water content in soil such as Sentek or Aquacheck)	1
Sensor (IM5041D Universal Soil Temperature Sensor with PI Sensor Part)	1
Sensor (PI54-D/5 Soil volumetric water content sensor from Pessl Instruments with 5m cable)	1
MD510SM Watermark strain gauge with 3.5m cable	1
TNS107 Tensiometer Irrometer 90cm, without pressure gauge	1
SE1200S Profile sensor for volumetric water content in soil manufactured by Sentek D&D Triscan 120 cm: 12x temperature, 12x soil humidity and 12x soil salinity, with 5m cable	1





IMETOS® IMT280 base station with a precipitation gauge, air temperature and humidity sensor (hygroclip), anemometer (mechanical), pyranometer is installed in front of the entrance to the main building of the university.

A full range of autonomous monitoring systems under the iMETOS® brand and FieldClimate cloud platform is used in all climate zones.

Table 3 presents the total costs associated with operating a PASO office.

Table 3 - Total costs

Name	Amount of costs per month, tenge
Office employee salary	120 000
Equipment depreciation	4 600
Utility bills	9 000

Other expenses	16 400
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Section 7. Financial section of the business plan

The forecast monthly revenue will be 250,000 tenge, costs – 150,000 tenge. Annual revenue growth is projected to be within 10%.

Services will be provided throughout the entire calendar year.

Table 4 - Profit and loss statement, thousand tenge

	2024	2025	2026	2027	2028
Revenue from services	3 000	3 300	3 600	3 930	4 250
Expenses	1 800	1 980	2 150	2 290	2 500
Gross profit	1 200	1 320	1 450	1 640	1 750

Project risk assessment

Table 5 - Possible risks and ways to eliminate and minimize them

№	Name of risk	Risk assessment	Methods for eliminating and minimizing negative consequences
External risks			
1	Entry into the market of a strong competitor	Medium	Maintaining a high level of quality of services provided
2	Probability of decreased demand as a result of market oversaturation	Medium	Differentiation of services
Internal risks			

1	Decrease in quality services provided, as a result low level of qualifications of teaching staff	Low	Training current teaching staff
2	Lack of own funds for self-financing of the project	Low	Low Search for alternative sources of replenishment of office funds

Conclusion

According to the results of the analysis, it can be concluded that the PASO office will become self-sustaining within a year. An increase in the services provided is predicted due to increased demand. The risks of the project are low since at the moment there is practically no competition.