

# Agronomist vacancy in the online labor market: how employers want to see it

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**Abstract.** In the article, the author identifies the professional and critical competencies of the Russian agronomist. The purpose of the study is to analyze the requirements of employers for vacancies of agronomists. The main research method is the intellectual analysis of the data of the online labor exchange. The author emphasized that the majority of vacancies contain invitations for full-time employment of agronomists, have requirements for work experience from 1 year to 6 years, salary offers from 25,000 rubles. Employers have more diverse requirements for competencies that differ from the competencies set out in the professional standard.

## 1 Introduction

Crop production is impossible without agronomy. The profession of an agronomist requires comprehensive knowledge in the field of agronomy and production management. The agronomist must constantly improve his knowledge, master new technologies. Training of agronomists in Russia is carried out in specialized educational institutions. The set of competencies that future specialists should receive is fixed in the professional standard. How much are these competencies in demand now in the labor market? What agronomists are employers looking for? To answer these questions, it is necessary to conduct a study of the demand in the labor market for the vacancy of an agronomist. In our opinion, the most complete description of the requirements for competencies can be seen in the online labor markets. Therefore, the purpose of the study was to analyze the offers of employers in the vacancies of an agronomist in the online labor market.

## 2 Related work and methods

To analyze the portrait of a modern Russian agronomist, it is necessary to consider the competencies described in the professional educational standard, and the requirements for the competencies of an agronomist that are put forward by employers. To do this, the author decided to collect and process data from the vacancies of an agronomist on the online labor market.

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## 2.1 Related work

According to the professional standard, an agronomist after graduating from a higher educational institution has knowledge of the methods of conducting tests for the distinctness, uniformity and stability of plants; the rules for making decisions on an application for a patent for a selection achievement; the features of zonal technologies for cultivating agricultural crops; the procedure for conducting pre-registration tests of agricultural plants; the technique of laying small-scale field experiments in accordance with the methods of state testing of agricultural crops; accounting and observations in experiments for each crop in accordance with the methods of state testing of agricultural crops; the method of assessing the prevalence and degree of damage to crops by diseases and pests in experiments on variety testing; methods of selecting plant samples and determining humidity, grain weight, grain nature, taste (tasting); the rules of acceptance of variety tests in state variety testing; the algorithm of dispersion analysis; documentation for variety testing; the procedure for maintaining the State Register of selection achievements allowed for use; the list of genera and plant species for which economic utility is established on the basis of state tests and expert evaluation; the description of varieties included for the first time in the State Register of Breeding Achievements approved for use; labor protection in agriculture. The author calls this set of competencies the professional competencies of an agronomist in Russia.

But the set of competencies of an agronomist does not end there, it is important to distinguish communicative, intellectual-educational, motivational-volitional competencies, as well as management and network interaction, the most popular of which we call critical [1].

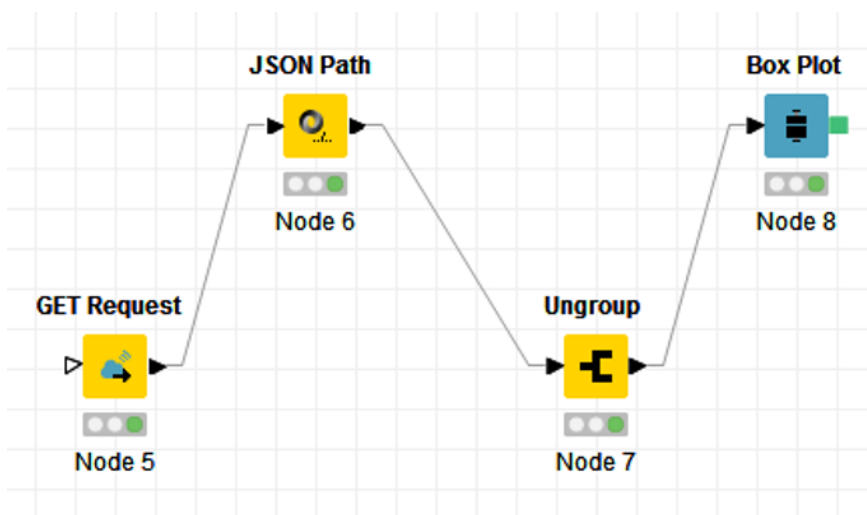
According to the researchers, the greatest problems arise for agronomists when implementing precision farming technologies and promoting the concept of sustainable development [2-5]. In particular, there is a lack of knowledge on information and communication technologies [6].

## 2.2 Methods

To collect data on vacancies, you can use various online labor exchanges. These are their examples for Russia: [zarplata.ru](http://zarplata.ru), [www.superjob.ru](http://www.superjob.ru), [www.rabota.ru](http://www.rabota.ru), <https://trudvsem.ru> and others, but the largest HeadHanter ([www.hh.ru](http://www.hh.ru)). We chose this exchange for data collection.

The stages of data collection implemented on the KNIME analytical platform are as follows (figure 1):

- Forming a request using [API.hh.ru](http://API.hh.ru).
- Division of the received text with vacancies according to the selected parameters (for us, the actual ones are the proposed lower and upper salary levels, education, set of competencies) using the JSON Path command.
- Ungroup data by selected parameters.
- Data visualization and analysis.



**Fig. 1.** Stages of data collection on the KNIME analytical platform.

The HeadHunter site provides free access to its data, the request is written in Python. Researchers disagree on how to properly analyze the level of the proposed salary in vacancies. There are different approaches, because often the employer does not specify its level or writes the minimum and maximum values, and sometimes only one of them. You can also find the phrase "by agreement" in ads, in which case we consider such vacancies together with vacancies without specifying the proposed salary level. Ads can be grouped by this feature, but researchers are interested in the minimum and maximum possible levels of wages.

The data is visualized using the "box plot" diagram, which displays a one-dimensional probability distribution and shows the median, lower and upper quartiles, minimum and maximum sample values, as well as outliers that we exclude from consideration.

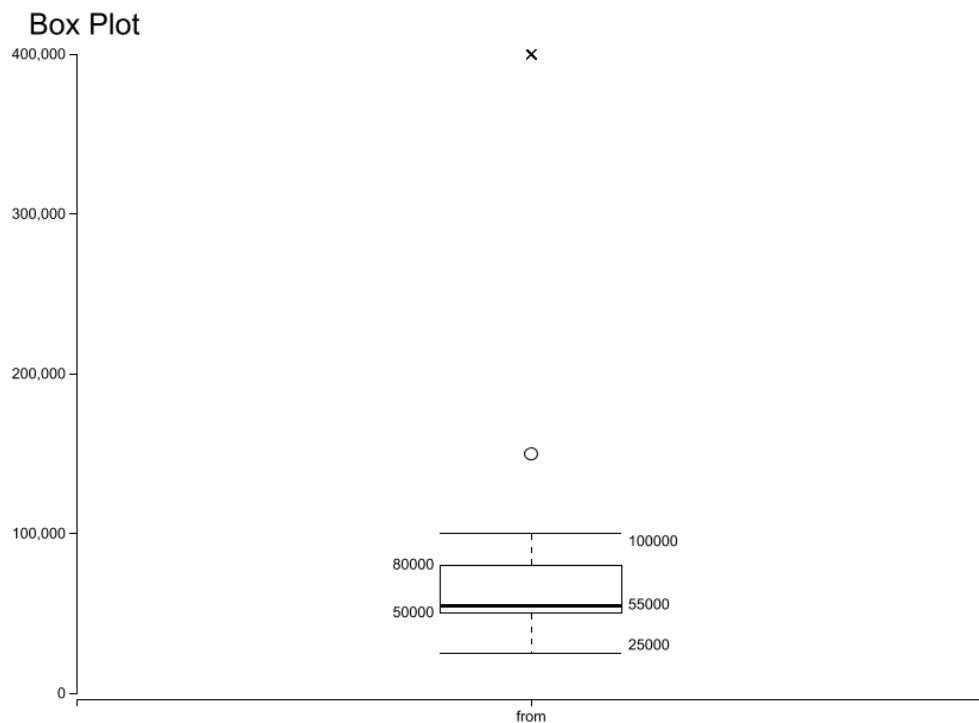
### 3 Results and discussion

On the website of HeadHunter on 10.03.2021 there were 1015 vacancies of the agronomist for Russia. The greatest demand for this profession was in the Krasnodar Territory, the Moscow Region, the Voronezh Region, Moscow, the Rostov Region, the Lipetsk Region, the Kemerovo Region, etc.

Employers are ready to hire agronomists with no work experience (we can see this in 20.87% of vacancies). At the same time, specialists with an experience of 3 to 6 years (34.68% of vacancies) and an experience of 1 to 3 years (33.60%) are most often required. The least common requirement is for more than 6 years of experience.

Most employers invite agronomists to work full-time (8 hours), there is only one vacancy with the offer of a shift method (15 working days, followed by 15 days off), a flexible schedule is indicated in three ads, three more are written about a mixed schedule, but you can find out what it is at the interview.

The amount of the proposed salary is indicated in 42.3% of vacancies. The lower limit of the salary level in ads is 25000 rubles (1 EUR=89.5 RUB), the upper limit is 100000 rubles (Figure 2). Please note that these values are extracted from the wording "The proposed salary level from ...".



**Fig. 2.** The box plot of the lower limit of the salary level offered in the vacancies of the agronomist on 10.03.2021.

The lower quartile of the salary level was 50000 rubles, the upper quartile is 80000 rubles, one value is a random outlier, we do not consider it.

We have identified the requirements for the competencies of an agronomist. They are quite diverse. Most employers want their specialists to have an education in their specialty. Here are some examples of requirements:

- Knowledge in the professional field, in particular of the means of mechanization of manual labor, measures for the prevention of diseases, pest control, manufacturers and features of crop protection products, fertilizers, hydroponic method of cultivation, rules and norms of labor protection, the basics of land and labor legislation.
- Strong-willed qualities, i.e. a focus on the result, the desire to achieve the goal.
- Communication skills: the ability to establish business relationships of trust with internal and external stakeholders, the ability to engage and convince, competent speech, etc.
- Knowledge of information technologies at the level of a PC user (text and table editors, email services, CRM), work with climate control systems (Priva, etc.).
- Ability to read special literature in English.

These competencies of the agronomist can be called critical, because they are the most popular now in the Russian labor market.

Thus, the selected competencies can not be obtained only in an educational institution, they are also formed with experience and depend on the character traits of the agronomist.

## 4 Conclusion

The study showed that the professional competencies of the agronomist and his critical competencies do not completely coincide, some of the knowledge can be obtained as a result of self-study and work experience.

The variety of types of technologies, the levels of their intensity, the constant improvement of the technical support of crop production, the development of new varieties change the requirements for the competence of the agronomist. A modern specialist has to constantly update their knowledge, track new products, and follow the principles of the Concept of Sustainable Development.

## References

1. A.A. Aletdinova, M.A. Bakaev, V.A. Actapchuk IOP Conference Series: Materials Science and Engineering **1019** (2021)
2. C. Charatsari, E.D. Lioutas International Journal of Sustainable Development & World Ecology **26**, 3 (2019)
3. K. Katke International Journal of Research and Analytical Reviews **6(1)** (2019)
4. E. Jakku, B. Taylor, A. Fleming, C. Mason, S. Fielke, C.Sounness, P. Thorburn NJAS-Wageningen Journal of Life Sciences **90** (2019)
5. K.G. Arvanitis, E.G. Symeonaki The Open Agriculture Journal **14(1)** (2020)
6. A.A. Fomin, D.A. Shapovalov, P.P. Lepekhin International Agricultural Journal **2** (2019)