

# Accounting Practice in Agricultural Enterprises in Turkey

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Agricultural sector is vital for human beings, it provides stuff to the other sectors and it contributes to employment considerably. A large proportion of the exportation of Turkey is made from the agricultural products. Thereby it can be said that the agricultural sector is one of the main sectors contributing to the economy of the country considerably. But it's known that the sector is affected by some risks and uncertainties such as: sector's being made-up of family-owned companies, its being sensitive to the weather conditions, the long process of buying products, the work's being seasonal, self-consumption, the difficulty in accounting the cost, unrecorded agricultural transactions. Within this context to determine the sector's contribution to the country's economy clearly is related to recording the agricultural transactions properly and choosing the realistic methods and implementations. But despite the importance that agricultural transactions carry, the rules of recognition of the related transactions stay at an area that is not much worked on by the operators and researchers till the accounting postulates published. One reason for this is the sector, which is generally made-up of family-owned companies, and the operators have a general view point that accounting is not the purpose of management but taxation. In recent years with the international development of economy and technology, it's seen that big investors have entered the sector. With the changed system of trade, agricultural sector became a strategic sector. In this respect, in-depth data and information, acquired from accounting system, became very important. In this study, the principles and the rules that are applied in the agricultural transactions within the frame of international accounting standards are explained. In which account group should be the biological assets that are agricultured and agricultural products according to their qualities, which accounts are used, and how they are recognitioned are explained. In this context, in the study the examples which are related with the implementation are given over annual plants and prennial plants. The differences between the accounts that are used, are mentioned over by these examples.

*Keywords:* agricultural activities, accounting standards, TMS 41, valuation of biological assets, depreciation of biological assets, Turkey

## Introduction

A large part of the Turkish population works in the agriculture sector. The share of the sector in national income and export has reached to considerable levels. The demand for organic fruits has been also on the rise with the recent developments in healthcare sector. In recent years, sectoral investment amounts have increased as well. Particularly, professional investments in orcharding are boosting progressively. Walnut, avocado, and

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banana are favorite fruits and they stand as some of the best practices of orcharding. The high unit price of these fruits, low-cost storage, and stronger demand compared to their supply attract enterprises to the sector.

Until the past couple of years, some factors such as rural population and small family businesses mostly living in the rural area and lower education level of the agricultural employers and employees have caused difficulties in accounting practices. In addition, the fact that the most of the agricultural businesses are exempt from tax and the taxation is considered as a part of accounting activities has led to inadequate understanding of the importance of accounting. Moreover, agricultural activities, in general, depend on natural conditions to a considerable extent. Thus, seasonal agriculture causes heavy work load or lack of labor at certain periods with employment in different seasons and different farming regions. Also, some products are harvested through more than one agricultural operating cycle and finally, the valuation and depreciation of biological assets cause complexity in accounting practices together with the factors mentioned above as well. Besides, some implementations such as plowing and fertilizing the soil might require more than one agricultural operating cycle. Calculation of how much of these expenses and the rest which are related to the current year or the following years is important to determine the real profit and loss of the current year properly.

Accounting practices have also gained more importance with the increasing number of large-scale orcharding enterprises with considerable capital investments. Generally, the main purpose of accounting is to provide practical data for economic decisions. International accounting and financial reporting standards are published to create a common language to meet the demands emerging with global economic and technological developments. Therefore, rapid improvements have been observed in accounting sector through agricultural enterprises applying these standards.

The study aims at explaining accounting principles and rules applied in agricultural activities within the frame of Turkish Accounting Standards (TMS) 41. It is also intended to help the accounting practice by defining account groups, accounts used and the recognition procedures according to the qualification of biological assets and agricultural products. Also, depreciation in agricultural activities and valuation procedures are explained in the study. In this context, examples in the study are given from annual and perennial plants and the differences of the accounts used are mentioned through these examples. However, when related literature is studied, the number of studies on TMS 41 standard of Agricultural Activities and the studies focusing on plant production as one of the types of agricultural activities remain limited despite the increasing amount in recent years. Thus, a study on TMS 41 Agricultural Activities standard in plant production is supposed to contribute to the literature.

## **Literature Review**

### **The Concept of Agricultural Activity**

In the process of accounting practice, Turkish Accounting Standards/Turkish Financial Reporting Standards (TMS/IFRS) have started to be used for particular enterprises. TMS 41 Agricultural Activities Standard is practised for agricultural products and biological assets as well (Şen & Karagül, 2014). TMS 41 first became effective as of 24.02.2006 to be practised for the accounting periods starting after the date 31.12.2005 (Gökgöz & Temelli, 2016; Tuğay, 2013). Afore-mentioned standard is up to date and the latest amendment was published in 12.11.2014 by statement number 31. By this statement, bearer plants were excluded from the scope of TMS 41. On 12.11.2014, bearer plants were included within the scope of TMS

Fixed Assets Standard (Deloitte, 2016; Gökgez & Temelli, 2016; Jana & Marta, 2014; Tuğay, 2013).

Main reasons of not being able to establish Agricultural Activities Standard could be explained as follows: Countries have a considerable agricultural share in their gross national product, enterprises are unsure about when and how to recognize activities related to biological assets and agricultural enterprises cannot reach a consensus on how to show various biological assets in the balance sheet (Yazarkan, 2016). Within this scope, TMS 41 clarifies how to recognize biological assets during biological transformation and defines how to implement initial recognition of agricultural product at harvest time (Büyükipekci & Kağıtçı, 2015).

Agricultural activities consist of four sectors: plant production, animal production, forestry, and aquaculture (Kıllı & Hatunoğlu, 2016; Badem, Savcı, & Kılınç, 2013). Plant production with an important part in agricultural activities also falls into two groups: field crops and horticultural crops (Kıllı & Hatunoğlu, 2016).

According to TMS 41, agricultural activities are defined as “the management of transforming the biological assets that are subject to sale or recycling to agricultural product and harvesting by an enterprise”. Agricultural activities are covered until the harvest point by the standard and processing the agricultural product is not considered as an agricultural activity (Kıllı & Hatunoğlu, 2016; Akbaba, 2015; Elad, 2004; Lefter & Roman, 2007).

According to this standard, on condition that they are related to agricultural activities (Marsh & Fischer, 2013; Tuğay, 2013; Mateş & Grosu, 2008):

- Biological assets,
- Live animals,
- Plants,
- Agricultural produce at harvest time and,
- Government incentives are considered as agricultural activities.

Biological assets could be bovine, sheep, and goat as well as agricultural produce and products as a result of processing (Akbaba, 2015; Badem et al., 2013). Biological assets could be classified in many ways such as consumable (corn, wheat etc.), bearer (fruit trees), mature or ripe (cattle, horse and fruit trees), immature or under ripe (calf, foal, budding trees), live assets with shorter and longer life-span than one-year (Akbaba, 2015; Gonçalves & Lopes, 2014; Badem et al., 2013). The valuation, recognition, and reporting rules of these assets are given by the standard.

### **Recognition of Agricultural Activities**

Biological assets, as they have types of transformations such as growing, spoilage, rotting, and dying, in other words because they have the capacity of transformation and this transformation is manageable and measurable as qualitative and quantitative, they need to be observed in separate groups on the Uniform Chart of Accounts (Akbaba, 2015; Tuğay, 2013; Alagöz & Antepli, 2013; Marsh & Fischer, 2013; Akdoğan & Sevilengül, 2007; Elad, 2004). These assets, in terms of being kept for a while and realized afterwards, are similar to inventories. However, they differ in terms of their transformation characteristics during the period of being kept. According to Uniform Chart of Accounts (UCOA), biological assets are recognized in the group of current or fixed assets on condition that they have a life of less and more than a year (Akbaba, 2015). In the Standard of Financial Statement Presentation, TMS 1 suggests biological assets be shown separately in the balance sheet. Accordingly, for biological assets which have the characteristics of either current or fixed assets,

the groups No. 16 and 21 can be used respectively (Tuğay, 2013; Alagöz & Antepli, 2013; Akdoğan & Sevilengül, 2007). For instance, take an enterprise growing walnut trees. In the account “210 Fruit Trees” a sub-account can be opened as walnut trees. On the other hand, in newly established orchards, until the investment is completed, enterprises can observe all their investments related to walnut trees under the account “218 Biological Asset Investments in Progress” (Taştan, 2013). A chart can be created for biological assets as seen in Table 1<sup>1</sup> (Tuğay, 2013).

Table 1

*Biological Assets Shown on the Chart*

16. Biological assets	21. Biological assets
160. Field crops	210. Fruit trees
161. Horticultural plants	211. Fruitless trees
162. Live poultry assets	212. Live poultry assets
163. Live aquatic animals	213. Live aquatic animals
164. Live bovine animals	214. Live bovine animals
165. Live sheep and goat	215. Live sheep and goat
166. Other biological assets	216. Other biological assets
167.	217. Accumulated depreciation (-)
168.	218. Biological asset investments in progress
169. Provision for decrease in value of biological assets (-)	219. Provision for decrease in value of biological assets (-)

Source: Tuğay, 2013, p. 154.

TMS 41 is applied to the enterprise's harvested agricultural products with biological assets at only harvest point. When the harvest is complete, assets must be recognized according to TMS 2 Inventory standard (Büyükipekci & Kağıtçı, 2015; Lalić, Perić, & Jovanović, 2012). Within this scope, harvested products and other biological assets whose life-span is over must be observed by the accounts in the account group 15 (Akdoğan & Sevilengül, 2007). TMS 41 is applied at only harvest point regarding agricultural products because it is intended to expedite the recording of transformation process of biological assets on the financial statements. Processing period of agricultural products after harvest is not considered within this standard (Büyükipekci & Kağıtçı, 2015).

### Valuation of Agricultural Activities

As long as an enterprise acquires or has aforementioned biological assets, it must follow the criteria of TMS 41 when recognizing and valuation operations are made (Tuğay, 2013).

TMS 41 adopts the fair value approach in valuation of biological assets and agricultural products. There are two important reasons for the standard to use fair value instead of historical cost in valuation. The first reason is that the system of historical cost does not have the capacity to provide adequately right data. The second reason is that it leads to over distribution of profit as assets get less valuable than they really are (Büyükipekci & Kağıtçı, 2015). Also, assets with biological transformation grow progressively and they get more valuable accordingly. However, recognition of these gains is not assumed in the tax procedure law (VUK). Therefore, the standard suggests that the fair value approach is the best at reflecting the effects of the changes emerged by biological transformation in biological assets (Akbaba, 2015; Tuğay, 2013).

<sup>1</sup> As an account group related to biological assets hasn't been created yet, account codes referring to these assets are identified logically in the present chart.

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. In other words, it is the value that appears in case of an asset transfer or payment of a liability in a setting of mutual bargain, between knowledgeable and willing parties. According to the standard, except for the cases of unreliable fair value measurement (then they are measured by net book value), biological assets are measured by subtracting estimated selling costs from their fair value on the date of their initial recognition and every reporting period. Thus, from the statement “it is measured by subtracting estimated selling costs (intermediary commissions paid, customs duties etc.) from the fair value of live assets”, it is inferred that the costs of access to market and selling point are subtracted from the market price. The value obtained after the subtraction of fair value and costs of selling point is the amount to be used in the measurement of biological assets (Deloitte, 2016; Akbaba, 2015; Gonçalves & Lopes, 2014; Jana & Marta, 2014; Şen & Karagül, 2014; Marsh & Fischer, 2013; Taştan, 2013; Mateş & Grosu, 2008).

After biological assets are valued by fair value, they are compared to cost value according to TMS 41 standard. After the comparison, positive or negative distinctions are linked to sales revenue and transferred to income statement. Distinctions of biological assets valuation can be followed in the sub-groups under “606 Biological Asset Valuation Distinctions Account”, which is one of the allocated accounts coded 603-609 in the account group 60 Biological Asset Valuation Distinctions. And it would be appropriate to follow the costs of biological assets sold in the account “620 Cost of Product Sold” (Şen & Karagül, 2014; Tuğay, 2013; Akdoğan & Sevilengül, 2007).

### **Depreciation in Agricultural Activities**

According to tax procedure law, lands and parcels are not subject to depreciation. However, orchards in the asset of agricultural enterprises are subject to depreciation. Therefore, useful life-span is limited to 40 years for mulberry, walnut, chestnut, pistachio trees, 25 years for hazelnut, citrusfruit, apricot, plum, almond trees, 20 years for vineyards, sour-cherry, cherry trees, and 10 years for peach trees (Taştan, 2013).

In accounting standards, assets subject to depreciation vary depending on their scope of standard. A biological asset within the scope of TMS 16 is a tangible asset and subject to depreciation like other tangible assets. For instance, bearer plants as they are biological assets, must be depreciated considering the biological transformation by its nature (Gökgöz & Temelli, 2016).

In order to start the depreciation of a tangible asset, capitalisation procedure of this asset must be complete. Moreover, the availability of the asset is another condition to start the depreciation. What must be understood here by availability of trees in the orchards is their beginning to yield fruit (Akbaba, 2015; Taştan, 2013). However, beginning to yield itself is not adequate, either. Because a sapling can yield even in the year it is planted. In this case, asset needs to begin yielding in adequate amount. That is, depreciation starts from the year when a tree begins to yield enough to compensate its annual cost and then the depreciable amount for that tree is calculated. If the value of the products obtained during the growing period does not meet the annual maintenance costs, it indicates that the investment in non-current assets is in progress. Within this period, realized incomes are subtracted from fixed asset cost (Taştan, 2013).

According to TMS 41, recognition of biological assets and valuation in each reporting period is based on “valuation approach”. Hence, biological assets are not subject to depreciation and particularly impairment test (Şen & Karagül, 2014). As a result, it can be inferred that according to this standard, depreciation is not applied

to the biological assets whose fair value can be measured reliably and only biological assets whose fair value cannot be measured reliably are subject to depreciation (Badem et al., 2013).

### Methodology

In this part of the study, in order to provide a sample for the application of the information presented in the literature, examples of the recognition of financial transactions about annual and perennial plants which are among the assets of a business are given. Agricultural enterprises operating in Turkey account for their financial transactions in the framework of uniform accounting system and Turkish accounting standards. At this point, the main problem of the study is to present how to account for agricultural transactions in the framework of standards and uniform chart of accounts. Within the framework of the standards and uniform chart of accounts, the following examples describe how annual and perennial plants are supposed to be recognized.

### Annual Plants

Example: On 01.05.201X, the enterprise EKIN purchases bean seed to be planted in their field at a price of ₺1,500 + ₺150 VAT in cash. On 02.05.201X, an expense of ₺5,000 is made for plowing, watering, and fertilizing to manage the land conditions. In 05.05.201X, seeds are sown. A wage of ₺2,000 (taxes and funds payable: ₺150, social security premiums payable: ₺100) is calculated for workers employed for sowing. On 10.06.201X, seeds transform into the plants of bean. On 20.07.201X, the enterprise bears the harvesting cost of ₺2,500. Harvested bean is recorded to the inventories with the fair value of ₺26,000.

<u>01.05.201X</u>		
150. RAW MATERIALS AND SUPPLIES	1,500	
150.01 BEAN SEED		
191. DEDUCTIBLE VAT	150	
100. CASH		1,650
Purchase of bean seed		
<u>02.05.201X</u>		
730. GENERAL PRODUCTION EXPENSES	5,000	
100. CASH		5,000
Management costs of the land		
<u>05.05.201X</u>		
710. DIRECT RAW MATERIALS AND SUPPLIES EXPENSES	1,500	
150. RAW MATERIALS AND SUPPLIES		1,500
Planting of the bean seed		
<u>05.05.201X</u>		
720. DIRECT LABOUR EXPENSES	2,000	
360. TAXES AND FUNDS PAYABLES		150
361. SOCIAL SECURITY PREMIUMS PAYABLE		100
335. DUE TO PERSONNEL		1,750
Recognition of labour expenses		
<u>10.06.201X</u>		
160. FIELD CROPS	8,500	
160.01 BEAN		
711. REFLECTION ACCOUNT FOR DIRECT RAW MATERIALS AND SUPPLIES		1,500
721. REFLECTION ACCOUNT FOR DIRECT LABOUR EXPENSES		2,000
731. REFLECTION ACCOUNT FOR GENERAL PRODUCTION EXPENSES		5,000
Initial recognition of the bean plant		
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<hr/> 20.07.201X <hr/>		
730. GENERAL PRODUCTION EXPENSES	2,500	
100. CASH		2,500
Recognition of harvest expenses		
<hr/> 20.07.201X <hr/>		
160. FIELD CROPS	2,500	
160.01 BEAN		
731. REFLECTION ACCOUNT FOR GENERAL PRODUCTION EXPENSES		2,500
Recognition of harvest expenses		
<hr/> 20.07.201X <hr/>		
152. FINISHED GOODS	26,000	
152.01 BEAN		
160. FIELD CROPS		11,000
160.01 BEAN		
606. BIOLOGICAL ASSET VALUATIC DISTINCTIONS		15,000
606.01 VALUATION RISE		
Record of the fair value of the bean harvested		
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Assets to be sold or the ones which will be non-living in a year are followed with accounts opened under the group 16 Biological Assets in UCOA (TDHP). Thus, when the seeds become bean plants, they are transferred, with expenses made, to 160 Field Crops account under the current assets account group 16. After the harvest of the beans, it is followed by their transfer to the inventories over its fair value.

### Perennial Plants

Products growing on bearer plants are biological assets and evaluated according to TMS 41. Account group No. 21 is used in UCOA for the walnut as a perennial biological asset. However, the context of the example given is limited due to the nature of the study. Although expenses for perennial plants involve more than one accounting period, examples of expense types and their recognition are given without distinction of periods in the study. With reference to these explanations, expenses which are made until the tree produces walnut are transferred to the account “218 Biological Assets in Progress” and then the account “210 Fruit Trees” is used when it reaches to yielding period.

The enterprise preferred valuation approach for biological assets according to TMS 41. A valuation rise was observed for the asset whose fair value can be determined reliably and this valuation surplus was recorded under the receivables of the account “606 Biological Asset Valuation Distinctions”. As the enterprise preferred the valuation approach, this asset does not require depreciation at the end of accounting periods.

Example: In 2012, the enterprise EKIN manages its 40-decare land to grow walnut: ₺1,500 for plowing, ₺1,500 for fertilizing, and ₺1,000 for digging equipment hired for saplings are paid in cash.

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730. GENERAL PRODUCTION EXPENSES	4,000
100. CASH	4,000
Land management expenses	
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After the land is prepared for planting, 1.500 walnut saplings each at ₺25 are paid by cheque (VAT ratio is taken as 8%).

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150. RAW MATERIALS AND SUPPLIES	37,500
150.01 WALNUT SAPLING	
191. DEDUCTIBLE VAT	3,000
103. CHEQUES GIVEN AND PAYMENT ORDERS	40,500
Purchase of walnut sapling	
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The purchased saplings are planted and ₺4,500 for labour expenses (taxes and funds payable: ₺350, social security premiums payable: ₺150) and ₺500 for irrigation are paid in cash.

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710. DIRECT RAW MATERIALS AND SUPPLIES EXPENSES	37,500
150. RAW MATERIALS AND SUPPLIES	37,500
Planting of the walnut saplings	
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730. GENERAL PRODUCTION EXPENSES	500
100. CASH	500
Recognition of planting expenses	
<hr/>	
720. DIRECT LABOUR EXPENSES	4,500
360. TAXES AND FUNDS PAYABLES	350
361. SOCIAL SECURITY PREMIUMS PAYABLE	150
335. DUE TO PERSONNEL	4,000
Recognition of labour expenses	
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218. BIOLOGICAL ASSET INVESTMENTS IN PROGRESS	46,500
218.01 WALNUT TREE	
711. REFLECTION ACCOUNT FOR DIRECT RAW MATERIALS AND SUPPLIES	37,500
721. REFLECTION ACCOUNT FOR DIRECT LABOUR EXPENSES	4,500
731. REFLECTION ACCOUNT FOR GENERAL PRODUCTION EXPENSES	4,500
Record of the walnut sapling investment	
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80% of the walnut trees withered as they couldn't adopt the land conditions. They no longer had value and were erased from records.

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659. OTHER EXPENSES AND LOSSES	2,000
218. BIOLOGICAL ASSET INVESTMENTS	2,000
IN PROGRESS	
218.01 WALNUT TREE	
Dying of the trees	
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Investment period of walnut saplings is over and they start to yield. Also, the walnut trees are valued by fair value and their fair value is measured as ₺28 for each.

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210. FRUIT TREES	48,760
210.01 WALNUT TREE	
218. BIOLOGICAL ASSET INVESTMENTS	44,500
IN PROGRESS	
218.01 WALNUT TREE	
606. BIOLOGICAL ASSET VALUATION	4,260
DISTINCTIONS	
606.01 VALUATION RISE	
Ripening of walnut saplings and record of the fair value	
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Expenses of fertilizing, pesticide application, grooming, labour etc. from the establishment of the orchard to the yielding of walnut trees (between the years 2012-2016) and the fair value measurement need to be made every year likewise. In the study, related interim period records are ignored.

September 2017 is the harvest time of the walnuts. Walnuts which are ready to be harvested are measured by fair value. It is found that the trees of the orchard in question with its fruits are measured as ₺500,000 by fair value. As the previous valuation rise is ₺48,760, it requires a record of ₺451,240 biological asset distinction as of September 2017. Accordingly, the record will be as follows:

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210. FRUIT TREES	451,240
210.01 WALNUT TREE	
606. BIOLOGICAL ASSET VALUATION	451,240
DISTINCTIONS	
606.01 VALUATION RISE	
September 2017, the fair value of walnut trees	
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The cost of goods sold in related period was calculated as ₺80,000. A contract was made with a dealer at a price of ₺10 in cash per kilogram for the walnuts on the trees. Ten kilos of walnuts per tree and 8% VAT are

taken for the example below.

_____ / _____		
100. CASH	153,360	
	600. DOMESTIC SALES	142,000
	391. VAT CALCULATED	11,360
Recognition of walnut sale		
_____ / _____		
152. FINISHED GOODS	80,000	
152.01 WALNUT		
	210. FRUIT TREES	80,000
	210. 01 WALNUT TREE	
Harvesting of walnut		
_____ / _____		
620. COST OF GOODS SOLD	80,000	
	152. FINISHED GOODS	80,000
	152.01 WALNUT	
Record of the walnuts sold		
_____ / _____		

### Conclusion

Agricultural sector has become a strategic sector through changing trade system. With global economic and technological developments in recent years, large-scale enterprises have also begun to invest in agricultural sector. As biological assets within the scope of agricultural activities have various transformations such as growing, spoilage, rotting, reproducing, their classification and recording, valuation and depreciation procedures are of great importance.

Agricultural activities are recognized according to TMS 41 standard and the products harvested are done by the standard of TMS 2 Inventories. Fair value approach is followed in the valuation of agricultural assets. Thereby, assets that can be measured by fair value reliably are not subject to depreciation. Assets subject to depreciation are the ones which cannot be measured reliably by fair value within the frame of the standard.

In the study, account groups and accounts used, the recognition and valuation procedures according to the qualification of biological assets in agricultural activities are illustrated within the scope of TMS/IFRS. It is intended to contribute to the literature by this way. Future studies could include classification and recording of assets that cannot be measured by fair value reliably with their valuation and depreciation. Accounting practices of trees beginning to yield for the following years could also be covered in the studies. Likewise, potential different accounting practices in agricultural enterprises between TMS/IFRS and VUK can be studied as well. In conclusion, such studies will not only contribute to the literature but also lead the way for the practice.

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