International Journal of Zakat and Islamic Philanthropy

Volume: 5 Issues: 1 [March, 2023] pp.92-105]
eISSN: 2672-7471
ISSN: 2682-7530
Journal website: journal.zakatkedah.com.my
Email Journal: journal@zakatkedah.com.my

AGRICULTURAL *NISAB* MEASUREMENT FOR ZAKAT ASSESSMENT

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Received: 10 January 2023, Reviewed:15 January 2023, Published: 31 March 2023

Abstract: *Zakat, the third pillar of Islam is intended to manage the social wealth, obligatory for the rich and distributed to the needy. Among the wealth is the agricultural produce that are due for zakat in each cropping season, either 5% or 10% of the crops. Yet, the crops must reach a certain amount to be zakatable, known as nisab which is obliged at 5 awsuq or 300 gantang Madinah. In January 1981, the Fatwa Committee Conference of the National Council for Islamic Religious Affairs of Malaysia (Majlis Fatwa Kebangsaan, MFK) decided the nisab as 363 gantang Malaysia; and the use of metric system for related type of zakat nisab is harus (allowed). This is following the enforcement of a new measurement system effective in January 1981; the International System of Units (SI); resulting in the traditional volume measures being prohibited for trade. A new culture emerged; agricultural produce is no longer traded by measuring (its volume) but by weighing its weight (kilogram). This led to some issues in conversion the nisab from the traditional to the SI unit. States in Malaysia decided the agricultural nisab differently without realizing that gantang and traditional measures have been obsolete. This paper recommended the appropriate SI unit and conversion for both agricultural nisab and gantang; which will help standardize the nisab in Malaysia. To adapt the SI unit to the current practice of agricultural produce trading, the application of density cup with simplified equations are introduced in the assessment of agricultural nisab and zakat.*

Keywords: Agricultural Zakat, *Awsuq*, *Gantang* Kilogram, Metric *Nisab* and *Sa'*

INTRODUCTION

Zakat is obligated for the rich and in Islam, the first indication of being rich is that the wealth reaches a certain amount, for example 20 dinar (85 grams) for gold and 200 dirham (595 grams) for silver. This amount is called *nisab*. As for the agricultural produce, there are three main opinions as summarised in the following Table 1. Imam Abu Hanifah, Hammad, Mujahid and Ibrahim Al Nakha'i perceived that agricultural produce are zakatable regardless of its amount and thus require no *nisab* while most Muslim scholars including Ibn 'Umar, Jabir ibn Zaid, 'Umar bin Abd 'Aziz, Al Hasan, 'Atta, Al Hakam, Imam Malik, Imam Al Syafi'i and Imam Ahmad bin Hanbal believed the agricultural zakat is obligated if the crop

reach an amount of 5 *awsuq* (Ibn Qudamah, 1997). This is based on a correct hadith reported by Abu Sa'id (Al Mundziri, 2014) from the Prophet Muhammad saying:

"There is no *sadaqah* obligatory on anything less than 5 *awsuq*."

Table 1: Agricultural Nisab Imposement

No.	Scholars / Schools	Views
1.	Imam Abu Hanifah, Hammad, Mujahid and Al Kasani	Zakat is obligated on any amount of crops (no nisab imposed). No nisab because zakat is collected every harvesting season, no annual *haul*.
2.	Ibn 'Umar, 'Umar bin Abd 'Aziz, Jabir ibn Zaid, 'Atta, Al Hassan, Al Hakam, Ibrahim Al Nakha'i, Al Thauri, Al Auza'i, Ibn Abi Laila, Imam Malik, Imam Syafi'i, and Imam Ahmad bin Hanbal	Zakat is obligated if the crops reach the *nisab*, an amount of 5 *awsuq* or 300 *gantang*.
3.	Abu Yusuf, Muhammad, Abu Sulaiman and I'yad	Zakat is obligated if the crops are measurable and reach the *nisab* of 5 *awsuq* or 300 *gantang*. For immeasurable crops, zakat is obligated on any amount of crops (no nisab imposed).

Source: (Ibn Qudamah, Al Syafi'i, Ibn Anas, Ibn Hanbal, Ibn Hazm, Majid, Ab Rahman M. F.)

The third view combined both views but in accordance to whether the crops are measurable or immeasurable. This is the opinion of Abu Yusuf, Muhammad, Abu Sulaiman and I'yad whom believe that if the crops are measurable, the *nisab* is 5 *awsuq* but if the crops are immeasurable, there will be no *nisab* and the zakat will be obligated regardless of the crops amount. *Awsuq* (أوسق) is the plural for *wasq* (وسق), a large volume measure widely used in Madinah that is also known as camel load (حِمْلُ بَعِيرٍ). A *wasq* is commonly known as 60 *sa'* (*gantang*) (Ibn Majah, 2007) and thus the agricultural *nisab* in general is 5 *awsuq* or 300 *gantang*. Ibn Qudamah (1997) suggested that for un-hulled crops, the *nisab* should be double which is 10 *wasq* or 600 *gantang*. This is the case for paddy, the zakat assessment must be done on the harvest day but the process of drying and de-husking to rice would take some time. In addition, for the purpose of durability and longer storing, it is better to store paddy un-hulled.

LITERATURE REVIEW

Several scholars proposed *nisab* for agricultural produce that according to them are immeasurable such as cotton, saffron, and honey. Al Kasani suggested the *nisab* is determined based on the minimum price of 5 *awsuq* of the domestic crops in each country. For example, if a country produces wheat, Basmati paddy and cotton, the *nisab* of the cotton will be according to the minimum price of 5 *awsuq* of wheat (which is cheaper in comparison to the Basmati paddy).

Al Qaradawi (2011) agreed with this opinion except that the price should not be the minimum price but rather averaging the value of *nisab* of different measurable crops of different crops in accordance to the socio-economic variables which will benefits the economy of the country.

Al Kasani suggested the *nisab* for immeasurable produce is determined based on 5 times the normal measurement unit for that specific crop, for instance, if rubber is traded using the unit *pikul* then the *nisab* will be 5 *pikul*. However, this will result in various *nisab* unit among the many Muslim countries.

Table 2: Measurement of Agricultural *Nisab*

No.	Scholars / Schools	Views
1	Imam Malik, Imam Syafi'e, Imam Ahmad bin Hanbal, Imam Nawawi, Al Dawudi	Crops *Nisab* = 5 *awsuq* = 300 *gantang* = 1200 *cupak* where 1 *cupak* = 1 1/3 *kati* (Madinah) of wheat Crops *Nisab* = **2000 *kati* of wheat**
2	Abu Yusuf, Muhammad, Abu Sulaiman and I'yad	*Nisab* = 5 *awsuq* = 300 *gantang* = 1200 *cupak* Crops *Nisab* = **2000 *kati* of wheat** (for measurable crops)
3	Ibn Qudamah, Al Bahuti	*Nisab* for fruits & de-husked crops = 5 *awsuq* = 300 *gantang* = **1200 *cupak*** *Nisab* for un-hulled crops (i.e. paddy) = 10 *awsuq* = 600 *gantang* = **2400 *cupak***
4	Al Qaradawi	Crops *Nisab* = 5 *awsuq* = 300 *gantang* where 1 *gantang* = 5 1/3 kati (Madinah) of wheat and 1 kati (Baghdad) = 408 g thus 1 *gantang* = 5 1/3 x 0.408 = 2.176 kg Crops *Nisab* = 300 x 2.176 = 652.8 ≈ **653 kg** where 1 *gantang* is estimated as 2.75 L thus Crops *Nisab* = 300 x 2.75 = **825 L**

Source: (Ibn Qudamah, Al Syafi'i, Ibn Anas, Ibn Hanbal, Ibn Hazm, Majid, Ab Rahman, Ibn Majah, Al Qaradawi)

Muhammad proposed almost similar analogy except that the measurement unit should be 5 times the largest measurement unit for crops in the country. As an example, if the *nisab* for wheat is in tonne metrics then the *nisab* for saffron will be 5 tonne metrics. However, 5 tonne metrics is an exceptionally large amounts despite the high price of the saffron and this will lessen farmers reaching the *nisab* and paying the zakat.

Table 3: *Nisab* for Immeasurable Produce

No.	Scholars / Schools	Views
1	Abu Yusuf, Al Kasani	Based on the minimum price of 5 *awsuq* of domestic crops (wheat, barley, paddy etc.)
2	Al Kasani	Based on 5 times the normal measurement unit for the produce
3	Muhammad	Based on 5 times the largest measurement unit i.e. 5 tonne
4	Yahya Ibn Murtada	Based on the price of *nisab* of gold (20 dinar / 85 g)
5	Yahya Ibn Murtada	Based on the price of *nisab* of silver (200 dirham / 595 g)
6	Ahmed, Al Qaradawi	Based on the weight equivalent of grains-wheat (653 kg)

Source: (Majid, Ab Rahman, Al Qaradawi)

Some other scholars preferred to determine the immeasurable produce *nisab* based on the value for gold or silver *nisab*, the same case as the *nisab* for trade asset. Ibn Qudamah (1997) refuses all the above views on immeasurable produce because there is no valid text (nas) or analogy (qiyas) to support the views. Ibn Qudamah (1997) strongly believed that agricultural zakat must be paid in kind and thus cannot use other crops' *nisab* or pay in value.

With the enforcement of the new SI measurement system, the traditional measurement system became obsolete and prohibited for use starting January 1981 (Weights and Measures Act 1972), leading to MFK decision that the new metric system is *harus* (allowed) to be used in all type of *nisab* measurement for zakat assessment; in the same meeting MFK also decided that paddy *nisab* is 363 *gantang* (Malaysia). This led to various understanding in conversion of the paddy *nisab* to the SI Unit among the states zakat centers as illustrated in Table 4.

Table 4: Agricultural *Nisab* in Practice in Malaysia

No.	States	Paddy Nisab	
		Traditional Unit	**Metric Weight (kg)**
1	Kedah	2 kunca 2 nalih 6 gantang 1 cupak 2 kepul	1300.49
2	Perlis	2 kunca 7 naleh	653
3	Selangor	363 gantang	1306
4	Negeri Sembilan	363 gantang	1306
5	Melaka	363 gantang	1300
6	Pulau Pinang	363 gantang	1200
7	Sabah	363 gantang	980.1
8	Johor	363 gantang	816.75
9	Wilayah Persekutuan	363 gantang	n/a
10	Kelantan	375 gantang Malaysia	875
11	Terengganu	375 gantang Malaysia	937.5
12	Perak	400 gantang	1305.6
13	Pahang	400 gantang Baghdad	1000
14	Sarawak	400 gantang	1080

Source: (States Zakat Centers / States Islamic Affairs Councils) kg kilogram

The conversion of traditional to SI unit is simple and straightforward for units such as *kati* (pound) to kilogram and *ela* (yard) to metre. This is because they are the same quantity i.e. weight and length. But, converting *gantang* to kilogram is not that straightforward because they are different quantities, *gantang* is a volume unit (كيل) while kilogram is a weight unit (وزن). The conversion of *gantang* to kilogram will need to take into account the density of the material being measured. The crops density does affect its weight; the denser the crops the heavier its weight. This is important as zakatable crops are of many types such as nuts, cereals, and fruits.

Today's trade of the agricultural produce is transacted by weighing the mass (weight) of the crops and very occasionally by measuring the volume (for liquid type only such as oil). The use of weight is very convenient plus this measurement quantity is easy to be standardized to the extent that one will never hear a kilogram that is unique to a place i.e. kilogram Japan. This means a kilogram is same whether in Malaysia, Paris, Japan, Saudi Arabia or even USA as it has been standardized around the world by the International Bureau of Weight and Measure (2019). Produces like cotton, saffron, honey, rubber, coconut, and palm oil are

transacted by their weight either in gram, kilogram, or tonne metric. The only issue is to determine its *nisab* which is regulated by its volume whether in litres or cubic metres.

This involves the density of the crops which can be determined using the density cup of suitable sizes; for example, for cotton and saffron, a small cup with a volume of 50 mL is sufficient while for rubber or coconut, larger cup with volume of at least 10 L should be used.

Table 5 summarised the type of zakatable crops according to different scholars / schools. Although there are differences based on the characteristics of crops such as staple food, fulfilling, durable, dryable, storable and measurable, the crops type is various, thus have different density and weight. Also, the drier the crops, the lighter its weight.

Table 5: Type of *Zakatable* Crops

No.	Scholars / Schools	Views
1	Ibn Umar and some salaf Musa, Ibn Talhah, Hasan Al Basri, Ibn Sirin, Al Syuaibi, Abu 'Ubaid, Ibn Abi Laila, Al Hasan Ibn Saleh, and Ibn Al Mubarak	Zakat only on four types of food *Hintah* (a type of wheat), *sya'ir* (barley), *tamar* (dates) and *zabib* (grapes)
2	Imam Syafi'i and Imam Malik	Zakat only on staple food (durable, dryable, storable, and fulfilling) Pulses/nuts (Garbanzo, chickpeas, beans/ful, wabiya, lentils/dhal, julban, basilah, peas) Grain/seeds (Wheat, barley, corn, sult (a kind of barley), sorghum, pearl millet, rice/paddy) Oily seeds (Sesame, seeds of red carrot, olive, qirtim) Fruits (Grapes and dates)
3	Imam Ahmad bin Hanbal	Zakat on food that are dryable, storable, and measurable. Not necessarily staple food. With exception of vegetables and certain fruits (apples, brinjal, cucumber etc)
4	Imam Abu Hanifah	Zakat on all types of food / crops. Usable and beneficial to mankind. With exemption of woods, marijuana and bamboo unless deliberately planted

Source: (Ibn Qudamah, Al Syafi'i, Ibn Anas, Ibn Hanbal, Ibn Hazm, Majid, Ab Rahman, Ibn Majah, Al Qaradawi)

METHODS

The SI measurement system is adopted worldwide (except for 3 countries; USA, Liberia, and Myanmar) to harmonize measurement around the globe and domestically in the country. This harmonization of measurement is carried out to facilitate the international trade as well as the domestic one. In Malaysia, it is gazetted in the Weights and Measures Act 1972 (Act 1971) where ten years grace period was given before the act started being enforced. In the act, the SI unit for volume is cubic metre (m^3). Decimal multiples and sub multiples are introduced for smaller and larger volume using prefixes such as milli and deci. In Schedule 3 (Weights and Measures Act 1972), the conversion of *gantang* to SI unit is stated as below:

1 *gantang* (Malaysia) = 4.54609 dm^3 (cubic decimetres)

where,

$1\ m^3 = 1000\ dm^3$

The International Committee for Weights and Measures (CIPM) in 1879 accepted a metric unit for volume, the litre (L) for use with the SI unit of cubic decimetre. This means that

$1\ L = 1\ dm^3$

The litre is widely used worldwide for smaller volume and is appropriate for *gantang* conversion as stated in the Weights and Measures Act 1972. Thus

1 *gantang* (Malaysia) = 4.54609 L

However, in the act, other local traditional measures such as *kunca* and *nalih* are not stated in the conversion schedule. According to Zain and Salleh (2001) and Mat (1991):

1 *kunca* = 10 *nalih* = 160 *gantang*
1 *nalih (naleh)* = 16 *gantang*
1 *gantang* = 4 *cupak*
1 *cupak* = 4 *kepul*

Kepul is stated as *pau* in the Schedule 3 (Weights and Measures Act 1972) which equal to 0.284131 L. By converting these traditional measures to *gantang* and then to litre, the paddy *nisab* in Table 4 can be converted to appropriate SI unit in the following table.

Table 6: States Agricultural *Nisab* in SI Unit

No.	States	Paddy *Nisab*		
		Gantang	**Metric Unit (L)**	**SI Unit (m^3)**
1	Kedah	358.375	1629	1.629
2	Wilayah Persekutuan, Selangor, Pulau Pinang, Negeri Sembilan, Johor, Melaka, Sabah	363	1650	1.65
3	Kelantan, Terengganu	375	1705	1.705
4	Perak, Pahang, Sarawak	400	1818	1.818
5	Perlis	432	1964	1.964

L litres m^3 cubic metres

From Table 6, the paddy *nisab* is more than a thousand litres for all states thus the more appropriate SI unit to use is the cubic metre (m^3). Table 6 also disclosed that there are five amounts for *nisab* where half of the states follow the 1981 fatwa by MFK which considered the opinion of Ibn Qudamah (1997) that paddy *nisab* is 600 *gantang* and Al Qaradawi (2011) definition that a gantang equals 2.75 L; thus, 600 x 2.75 = 1650 L = 1.65 m^3.

Perak, Pahang and Sarawak define paddy *nisab* as 400 *gantang* Malaysia which equals to 400 x 4.54609 = 1818 L = 1.818 m^3. This value can be related to Saudi Arabia Standard

Organisation (SASO) *gantang* volume (Khalid, 2001) which is 3.03 L whereas 600 x 3.03 = 1818 L = 1.818 m^3. The complete calculations were shown by Ab Rahman et.al. (2015).

The simplest way to standardize the agricultural *nisab* is by standardizing the *gantang* in accordance to the Prophet's *gantang* (Sa' an-Nabawi). For example, if the Prophet's *gantang* volume is standardized at an amount of 3 L then the agricultural *nisab* will be 3 x 300 = 900 L = 0.9 m^3 for zakat ready crops such as fruits and de-husked cereals (rice, lentils, beans, seeds) and 3 x 600 = 1800 L = 1.8 m^3 for un-hulled crops such as paddy. Though there will be two types of *nisab* in accordance to crops condition, the agricultural *nisab* still could be standardized using the SI unit of cubic metre.

Nevertheless, the current trading for paddy which usually takes place on the harvesting day (or a day after) uses bulk weighing by tonne metric which equal to a thousand kilogram. The weighing is accomplished either by using large scale platform balance or using weighbridge as illustrated in Figure 1. This explains why the paddy *nisab* is stated in kilogram by almost all states (Table 4).

Figure 1. Paddy Weighing Using 'Weighbridge'

In reality, many of the scholars and officers of states zakat centres and councils understand that the *nisab* is volume measure but has to resort to weight measure as to simplify the assessment and adapt to the current paddy trading system. The issue is nowadays paddy is traded using weight measure (kilogram or tonne) but its *nisab* is apparently volume measurement (cubic metre) since *wasq* is a volume measure.

Said et.al. (2015) suggested the use of *nisab* box which can be easily constructed using wood or steel with the length, width, and height of 1 meter (volume 1 m^3 or 1000 L) and a vertical scale on the height wall. Though the theory seems simple, the execution will be tiresome since it will involve bulky measurement, a procedure that very likely will be omitted.

Hence, a simpler procedure is proposed using a much smaller 'density cup' (with ratio of up to 1:1000 in comparison to the *nisab* box) and a simple equation. The key is the assumption that the paddy density for sampling is same with the total crops' density. However, this assumption is only applicable for the same type of paddy per calculation. The amount (volume) of paddy can be estimated as the following;

$$V_{paddy} = \frac{m_{paddy}}{\rho_{paddy}} \quad [1]$$

where V_{paddy} = the volume of the paddy

m_{paddy} = the mass of the paddy

ρ_{paddy} = the density of the paddy

The density is inversely proportional to the paddy amount which means more paddy amount if the paddy is less dense. This amount must be compared to state paddy *nisab* to determine whether the farmer is obligated to pay the paddy zakat.

Another property, the moisture content of the paddy also has significant effect and is proportional to the paddy amount as it directly affects the paddy weight. For instance, the Basmati type (long grain) is usually drier than other type thus it is less heavy and has lower volume.

Figure 2. Paddy Density Estimation Using 1 L Density Cup

The paddy density can be estimated using an easy sampling procedure shown in Figure 2. A density cup with known volume (1 L) is weighed twice, firstly empty, $m_{cup,tare}$ and secondly loaded with the paddy sample, $m_{cup,loaded}$. The paddy density, ρ_{paddy} is

$$\rho_{paddy} = \frac{m_{cup,paddy}}{V_{cup}} = \frac{m_{cup,loaded} - m_{cup,tare}}{V_{cup}} \quad [2]$$

where $m_{cup,paddy}$ = paddy weight (kilogram) = $m_{cup,loaded} - m_{cup,tare}$
$m_{cup,loaded}$ = loaded cup weight (kilogram)
$m_{cup,tare}$ = tare cup weight (kilogram)
V_{cup} = volume of the density cup (litre)

The total volume for the paddy cropped for that particular cropping season, $V_{paddy,total}$ can be calculated as the following

$$V_{paddy\ total} = \frac{m_{paddy,total}}{\rho_{paddy}} \quad [3]$$

where, $m_{paddy,total}$ = total crops weight for the season (kilogram)

The total crops weight for the season, $m_{paddy,total}$ is the weight obtained from the weighing during trading either using the weighbridge or the platform balance. Further, as the volume of the density cup is known (= 1 L) the volume equation for total crops can be simplified to

$$V_{paddy\ total} = \frac{m_{paddy,total}}{m_{cup,loaded} - m_{cup,tare}} \quad [4]$$

For semi and automatic balance with the tare function, the weight of the empty cup can be left out from the equation and further can be simplified as

$$V_{paddy\ total} = \frac{m_{paddy,total}}{m_{cup,paddy}} \quad [5]$$

The total paddy volume cropped in the season, which can be calculated using Eq. [5] must be compared to the paddy *nisab* volume either according to each state fatwa as tabulated in Table 6 or preferably compared to standard *nisab* volume which is currently still being studied.

Some issues arise in the assessment of agricultural zakat due to the various opinions of the scholars and schools. This started with whether there is *nisab* for agricultural produce (Table 1), then the measurement of *nisab* (Table 2), the *nisab* for immeasurable produce (Table 3), the type of zakatable crops (Table 5), the rate of agricultural zakat (Table 7) and permissibility of deduction of farming operational cost and farmers' sustenance (Table 8).

The rate of agricultural zakat depends on the watering method; natural watering such as by the rain, springs, river, or self-absorbing water imposed 10 % of the crops. But if energy is used such as using pail or camel, sprinklers, tube-wells or any other man-made irrigation that require frequent maintenance, the agricultural zakat is reduced (as rukhsah) to 5 %.

Table 7 summarized the opinions from the scholars for mixed watering methods. This will depend on whether the percentage of both methods are equal and known. Separate farm that used different method will be assessed separately according to the method used.

Table 7: Rate of Agricultural Zakat

No.	Irrigation Method	Scholars / Schools	Views
1	Natural watering	All	10 % of the crops
2	Use of energy or man-made irrigation	All	5 % of the crops
3	Both methods, equal percentage	Ibn Qudamah, Arsyad Al Banjari	7.5 % of the crops
4	Both methods, equal percentage	Al Nawawi, Al Syafi'i school	Depends on farmer's plan which method to adopt
5	Both methods, inequal percentage	Most scholars	5 or 10 % of the crops; according to the more frequent watering method
6	Both methods, inequal percentage	Al Syafi'i school	Calculated based on the percentage of irrigation
7	Both methods, unknown percentage	Most scholars	10 % of the crops
8	Both methods, unknown percentage	Al Syafi'i school	7.5 % of the crops

Source: (Ibn Qudamah, Al Syafi'i, Ibn Anas, Ibn Hanbal, Ab Rahman, Al Qaradawi, Al Nawawi, Hamat)

Another important issue regarding the assessment of zakat is whether the operational cost and farmers' sustenance could be deduced prior to zakat assessment. Table 8 summarized the opinions from different scholars and schools of thought.

Table 8: Deduction of Farming Operational Cost and Farmers' Sustenance

No.	Scholars / Schools	Views
1	Ibn Hazm, Ibn Humam	No deduction
2	Umar Al Khattab, Ibn Al 'Arabi, Ibn Qudamah	Deduce one third or one fourth from zakat collection
3	'Ata	Deduce operational cost

4	Al Qaradawi	Deduce farmers' sustenance (and family)

Source: (Ibn Qudamah, Ibn Hazm, Majid, Ab Rahman, Al Qaradawi, Ibn Humam)

The Department of Wakaf, Zakat and Hajj (JAWHAR) in its Manual of Zakat Calculation and Management (2008) counseled those operational costs are deduced from the total paddy sale. These include the costs of pesticides, rental, the wage for labor or harvesting machines and logistic costs. However, in the Federal Constitution (2010) of Malaysia, the religious matters fall under the power of the ruler of each state (Sultan/King) except states that do not have ruler which are under the power of Yang di-Pertuan Agong. This results in discrepancies among the states in zakat management. The practice amongst states in Malaysia also further differed in accordance with the zakat officers understanding and which scholars or school they are following.

RESULTS AND DISCUSSION

The following example for assessment of agricultural zakat is presumed with these assumptions; no deduction of both operational cost and the farmers' sustenance; the paddy price is RM 1.20 per kilogram, irrigation is used, the standard paddy *nisab* is 1.8 m^3 and the paddy density is estimated using the weight shown in Figure 2. Also, the total paddy weight for Farmer A is 1.128 metric tonne. Using Eq. [4] the total paddy volume is:

$$V_{paddy\ total} = \frac{m_{paddy,total}}{m_{cup,loaded} - m_{cup,tare}} = \frac{1128}{0.865 - 0.2418} = \frac{1128}{0.6232} = 1810\ L = 1.81\ m^3$$

This total volume must be compared to the standard paddy *nisab* which is 1.8 m^3 (example) and is found to be more than the *nisab* amount thus Farmer A is obligated to pay the agricultural zakat. And as he used irrigation, the zakat rate is 5 % of the total crop. The agricultural zakat can be assessed as the following:

Paddy zakat for Farmer A = 5 % x 1128 kg = 56.4 kg

= 56.4 kg x RM 1.20 / kg = RM 67.70

Another example is also using the same assumptions as Farmer A except that for Farmer B the total paddy weight for that cropping season is 1.08 metric tonnes. The total paddy volume is:

$$V_{paddy\ total} = \frac{m_{paddy,total}}{m_{cup,loaded} - m_{cup,tare}} = \frac{1080}{0.865 - 0.2418} = \frac{1080}{0.6232} = 1733\ L = 1.733\ m^3$$

The total volume 1.733 m^3 is not amounted to the assumed standard paddy *nisab* which is 1.8 m^3 and thus Farmer B is not obligated to pay the paddy zakat.

If other opinion is adopted i.e. to include deduction, then it can be deduced from either the total paddy volume (in m^3) or from the price of total paddy weight. If one is to leave one third or one fourth from the total collection, it is easier to deduce from the total paddy volume (in m^3) and then determine whether the balance reaches the *nisab*. For example, Farmer C is in a state that regulate deduction for self-sustenance which is one fourth from the total crops. Other assumptions are similar with Farmer A and his total crop for the season is 1.306 metric tonnes. The total paddy volume is:

$$V_{paddy\ total} = \frac{m_{paddy,total}}{m_{cup,loaded} - m_{cup,tare}} = \frac{1306}{0.865 - 0.2418} = \frac{1306}{0.6232} = 2096\ L = 2.096\ m^3$$

The one fourth deduction will be deduced from this amount, ¼ x 2096 = 523.9 L.
Zakatable amount = 2096 – 523.9 = 1572 L = 1.572 m^3.

This amount is less than the standard paddy *nisab* which is 1.8 m^3 (example) and therefore Farmer C is not obligated to pay the paddy zakat. But if one is to deduce operational cost and farmer's sustenance in money value, then it is easier to deduce from the price of the total paddy weight. For instance, Farmer D is in another state that regulate deduction for operational cost and his total crop is 2 metric tonnes. Other assumptions are similar as Farmer A, the operational cost for the season is RM 1000 and the price of total paddy weight is:

RM 1.20 x 2000 kg = RM 2400.

Nisab for paddy is assumed at 1.8 m^3 and equivalent to
Nisab (in kg) = 1800 x (0.865 – 0.2418) = 1121.7 kg
Nisab (in RM) = RM 1.20 x 1121.7 = RM 1346.10
Zakatable amount = RM 2400 – RM 1000 = RM 1400
This amount (RM 1400) reaches the *nisab* (RM 1346.10) and thus the zakat is
Paddy zakat for Farmer D = 5 % x RM 1400 = RM 70

CONCLUSION

This paper reviews the differences of agricultural *nisab* practiced by each state in Malaysia which call for the standardization through the appropriate SI unit, the cubic metres. This paper proposes a simple procedure to accommodate the use of cubic metres for agricultural *nisab* by application of a density cup and the density equation to help the zakat practitioners. The equations [4] or [5] determine the total crops volume for the season and the result can be compared to the state's *nisab* as in Table 6 or with the standard agricultural *nisab*.

The standard agricultural *nisab* could be established once its basic parameter, the *gantang* being standardized in accordance with the Prophet's *gantang*. The study about standard *gantang* is still ongoing and call for cooperation from states zakat centres and the standard bodies.

The use of the density equation resulted in determination of whether the crops reach the *nisab* using the actual density of the crops. This facilitates the accurate assessment of different type of crops in different location. The procedure and the equation are both simple and feasible. This extra step helps to maintain accurate quantities while adapting to the current paddy trading.

Ab Rahman (2010) reported the discrepancies of assessment method for paddy zakat in Malaysia, with no deduction of operational cost and farmer's sustenance, to the extent that the *nisab* rate is below the poverty line. Ab Rahman (2015) reviewed the current assessment and found that most states imposed the deduction on operational cost while some also deduce the farmer's sustenance. However, the *nisab* remain differs among the states. By using the appropriate SI unit, the *nisab* should be able to be standardized. Some examples of the agricultural zakat assessment are shown both without and with deduction of operational cost.

Some state such as Perlis since 1985 has obligated the agricultural zakat to include coconut, rubber, sugarcane and even *harum manis* mango and sea produce such as fish and pearls (2014). Ab Rahman (2019) suggested the adoption of Abu Hanifah opinion to expand

the agricultural zakat to crops other than paddy in order to increase the revenue. The use of the density equation opens the possibility for such type of agricultural produce including palm oil to be obligated for zakat. Nonetheless, the proper size of the density cup, the procedure for each produce has to be specified including whether the produce is raw (i.e. un-hulled) or simply ready for zakat (i.e raw fruit or de-husked).

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