National Survey of Alcoholic Beverages

As the government agency that has jurisdiction over the liquor industry, the National Tax Agency works to secure the safety and quality of alcoholic beverages for the purpose of the sound development of the liquor industry, as well as ensuring the proper and fair assessment of liquor taxes.

The National Survey of Alcoholic Beverages consists of the examination of the safety, quality, labeling and components of commercially sold liquor. This survey is annually conducted in cooperation with the National Research Institute of Brewing and the results are published on the web.

1. Safety

The National Survey of Alcoholic Beverages monitors the amount of components for which a maximum limit has been set in the Food Sanitary law: namely, methyl alcohol, sulfite (total sulfite), sorbic acid and potassium sorbate. Ethyl carbamate is also analyzed. This compound, which occurs naturally in fermented foods and alcoholic beverages, is said to be probably carcinogenic to humans. If there are any problems with a manufacturer's product, technical guidance is given by technical officers from the relevant Regional Taxation Bureau.

After the Great East Japan Earthquake, radiation examinations have also been included. All the samples that have been tested fully comply with the standards on radiation established by both Japan and the countries to which Japan exports alcoholic beverages.

・Results of radiation examination of alcoholic beverages

2. Quality

A sensory evaluation is carried out by experts, including technical officers from Regional Taxation Bureaus. If there are any problems with a manufacturer's product, technical guidance is given by technical officers from the relevant Regional Taxation Bureau.

3. Labeling

The labeling of liquor products is examined for regulatory compliance.

4. Components

The chemical analysis of components related to the quality of alcohol beverages (e.g., alcohol content, *ekisu-bun* (extract), and *san-do* (acidity)) is carried out at facilities at Regional Taxation Bureaus.

For more details, please see:

・Components of Japanese Sake

Components of Japanese Sake

In order that they can be used as representative values, the average values for several components of *Tokutei-meisho*, (specifically designated sake*) and ordinary sake are respectively calculated from data taken for 5 years (2009-2013) (Table 1). From this data, the characteristics of sake are summarized below.

・Alcohol content

Typically contains from 15 to 16 % alcohol.

・*Nihonshu-do* (sake meter value)

Nihonshu-do is a specific gravity scale that provides a sweetness-dryness index for sake.

The average sake meter value is from +4 to +5.

・*Ekisu-bun* (extract)

Ekisu-bun is defined as the weight of non-volatile components (g/100 ml).

The average extract is from 4.3 to 4.5.

・*San-do* (acidity)

San-do is the index of organic acid content such as lactic acid, succinic acid and malic acid.

The average acidity is from 1.2 to 1.5. Acidity makes sake taste dry and rich.

In general, *junmai* sake *contains more acidity than others.

・*Amino san-do* (amino acid value)

Amino san-do is the index of amino acid content. The average amino acid value is from 1.3 to 1.5. Sake with more amino acid tastes richer, while less amino acid tastes lighter.

・*Amakara-do* and *Noutan-do*

Amakara-do and *Noutan-do* are indexes calculated from *Nihonshu-do* and *San-do*. The higher the *amakara-do* is, the sweeter the sake tastes. Meanwhile, the higher the *noutan-do* is, the richer the sake tastes.

The average level of *amakara-do* is from -0.5 to -0.1, and the average level of *noutan-do* is from -1.0 to -0.4.

Specifically designated sake in general, *junmai* sake in particular, tends to have a drier and richer taste.

・Aroma compounds

Ginjo sake has a fruity aroma which consists of esters such as isoamyl acetate (a banana-like flavor) and ethyl caproate (an apple-like flavor).

The average level of ethyl caproate is 2.1 mg/l and the average level of isoamyl acetate is 1.5 mg/l in *ginjo* sake.

- Explanatory Notes

Tokutei-meishou, (specific designation)：This is the classification system for sake as determined by the National Tax Agency. There are three categories below and combination of them.

- *Ginjo* sake：Made from highly polished rice, *koji*, water and *jozo* alcohol. Brewed using the *ginjo-zukuri* method. Has a characteristic flavor and high clarity.
- *Junmai* sake：Made simply from rice, *koji* and water. Good flavor and high clarity.
- *Honjozo* sake: Made from polished rice, *koji*, water and *jozo* alcohol. Good flavor and high clarity.

Ordinary sake: Sake other than specifically designated sake

The above are simplified descriptions. If you need more information, please refer to National Tax Agency Notice No.8, November 22, 1989 “Labeling Standards for the Manufacturing Process and Quality of Sake.” (Japanese language only)

The average values of components are also calculated broken down by prefecture. (Table 2) The distribution of *amakara-do* and *noutan-do* of sake has been visualized on a map. (Figure 1 and 2)

The profile of ordinary sake made in each prefecture has been plotted with *amakara-do* on the x-axis and *noutan-do* on the y-axis. (Figure 3)

Table 1. Components of Japanese sake

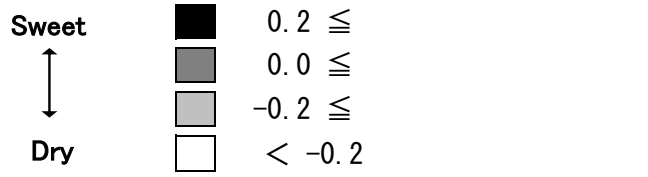
category	Ordinary sake	*Ginjo*	*Junmai*	*Honjozo*
Number of samples analysed	2,231	2,070	2,017	1,901
Alcohol content (%)	15.39	15.91	15.46	15.54
Nihonshu-do (sake meter value)	3.8	4.4	4.1	5.1
Ekisu-bun (extract)	4.50	4.54	4.47	4.31
San-do (acidity)	1.18	1.32	1.49	1.27
Aminosan-do (amino acid value)	1.28	1.27	1.54	1.39
Amakara-do	-0.13	-0.34	-0.52	-0.35
Noutan-do	-0.97	-0.74	-0.41	-0.87
Ethyl caproate (mg/l)	-	2.11	-	-
Isoamyl acetate(mg/l)	-	1.49	-	-

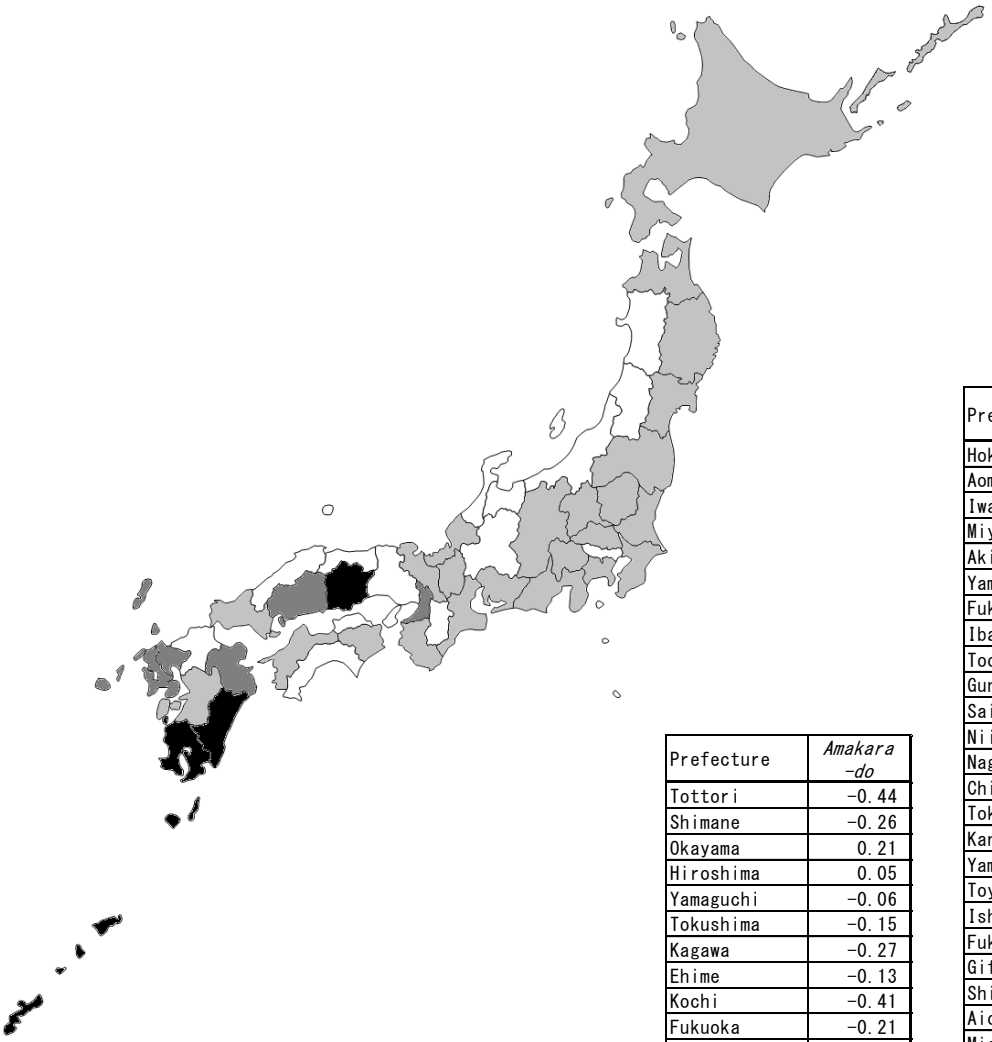
Table 2. Components of Ordinary Sake

	Number of samples	Alcohol content	*Nihonshu-do*	*Ekisu-bun*	*San-do*	*Amino san-do*	*Amakara -do*	*Noutan -do*
Total	2,231	15.39	3.8	4.50	1.18	1.28	-0.13	-0.97
Hokkaido	40	15.38	4.0	4.47	1.22	1.14	-0.19	-0.92
Sapporo Region	40	15.38	4.0	4.47	1.22	1.14	-0.19	-0.92
Aomori	31	15.36	4.1	4.46	1.20	1.48	-0.19	-0.94
Iwate	39	15.52	3.7	4.57	1.13	1.27	-0.06	-1.07
Miyagi	38	15.44	3.5	4.58	1.20	1.00	-0.13	-0.93
Akita	52	15.25	3.8	4.47	1.26	1.23	-0.22	-0.83
Yamagata	63	15.40	4.7	4.35	1.18	1.14	-0.21	-1.02
Fukushima	62	15.31	3.0	4.62	1.19	1.33	-0.05	-0.93
Sendai Region	285	15.37	3.8	4.50	1.19	1.23	-0.14	-0.95
Ibaraki	56	15.32	5.2	4.22	1.14	1.19	-0.19	-1.08
Tochigi	56	15.37	3.5	4.59	1.13	1.14	-0.09	-1.03
Gunma	43	15.22	5.4	4.17	1.06	1.08	-0.15	-1.27
Saitama	53	15.25	5.3	4.22	1.09	1.14	-0.16	-1.22
Niigata	108	15.51	5.9	4.14	1.05	1.12	-0.21	-1.32
Nagano	113	15.18	5.0	4.25	1.10	1.00	-0.17	-1.19
Kanto-Shinetu Region	429	15.32	5.1	4.25	1.10	1.10	-0.17	-1.19
Chiba	51	15.24	4.7	4.30	1.11	1.14	-0.14	-1.16
Tokyo	23	15.54	5.7	4.22	1.12	1.16	-0.23	-1.18
Kanagawa	26	15.40	4.5	4.38	1.17	1.32	-0.19	-1.03
Yamanashi	31	14.90	4.5	4.24	1.18	1.29	-0.17	-1.04
Tokyo Region	131	15.25	4.8	4.29	1.14	1.21	-0.17	-1.11
Toyama	29	15.06	6.5	3.91	1.20	1.09	-0.40	-1.06
Ishikawa	43	14.91	3.6	4.36	1.30	1.36	-0.25	-0.75
Fukui	41	15.33	5.0	4.26	1.14	1.34	-0.20	-1.11
Kanazawa Region	113	15.10	4.9	4.21	1.21	1.28	-0.27	-0.96
Gifu	71	15.55	4.2	4.47	1.24	1.49	-0.23	-0.87
Shizuoka	32	15.71	5.2	4.34	1.11	1.45	-0.17	-1.18
Aichi	54	15.33	3.6	4.51	1.19	1.44	-0.13	-0.94
Mie	48	15.33	2.8	4.66	1.19	1.31	-0.06	-0.90
Nagoya Region	205	15.46	3.8	4.51	1.20	1.43	-0.15	-0.95
Shiga	73	15.71	3.9	4.64	1.19	1.41	-0.15	-0.96
Kyoto	57	15.39	3.3	4.64	1.20	1.21	-0.11	-0.91
Osaka	29	15.83	2.1	4.99	1.18	1.17	0.04	-0.90
Hyogo	117	15.47	3.2	4.69	1.30	1.26	-0.21	-0.72
Nara	54	15.74	3.8	4.69	1.30	1.49	-0.26	-0.75
Wakayama	45	15.47	3.7	4.58	1.22	1.21	-0.17	-0.88
Osaka Region	375	15.57	3.4	4.68	1.24	1.30	-0.17	-0.83
Tottori	35	15.61	6.4	4.10	1.25	1.47	-0.44	-0.96
Shimane	43	15.64	5.2	4.31	1.18	1.44	-0.26	-1.04
Okayama	59	15.09	1.9	4.77	1.03	1.13	0.21	-1.17
Hiroshima	62	15.39	2.7	4.69	1.11	1.20	0.05	-1.05
Yamaguchi	52	15.67	3.8	4.56	1.13	1.35	-0.06	-1.07
Hiroshima Region	251	15.45	3.7	4.53	1.13	1.29	-0.06	-1.07
Tokushima	42	15.30	4.3	4.37	1.15	1.16	-0.15	-1.04
Kagawa	21	15.44	5.2	4.30	1.19	1.32	-0.27	-0.93
Ehime	54	15.48	4.2	4.46	1.14	1.29	-0.13	-1.06
Kochi	32	15.19	6.5	3.96	1.21	1.24	-0.41	-1.06
Takamatsu Region	149	15.36	4.9	4.31	1.17	1.25	-0.22	-1.04
Fukuoka	83	15.34	3.4	4.57	1.28	1.57	-0.21	-0.77
Saga	54	15.34	0.3	5.11	1.30	1.38	0.05	-0.59
Nagasaki	42	15.12	0.4	5.04	1.22	1.42	0.14	-0.74
Fukuoka Region	179	15.29	1.8	4.84	1.27	1.48	-0.05	-0.71
Kumamoto	23	15.29	3.0	4.62	1.23	1.37	-0.11	-0.84
Oita	47	15.43	1.2	4.96	1.14	1.35	0.17	-0.97
Miyazaki, Kagoshima and Okinawa	4	14.55	3.3	4.35	0.88	1.45	0.26	-1.53
Kumamoto and Okinawa Region	74	15.34	1.9	4.82	1.15	1.36	0.09	-0.96

Figure 1. *Amakara-do* Map

"Amakara-do"＝193593/(1443+*"Nihonshu-do"*)-1.16×*"San-do"*-132.57



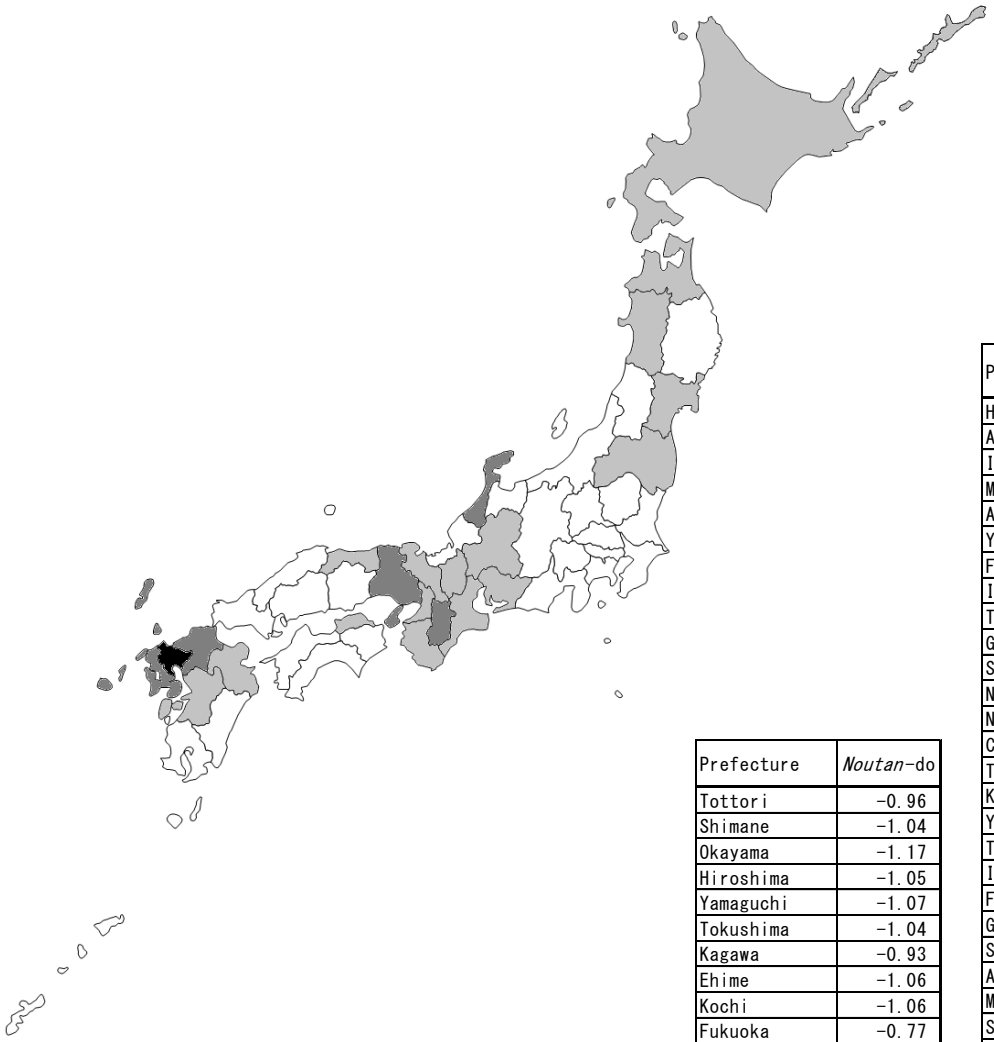


Prefecture	*Amakara -do*
Tottori	-0.44
Shimane	-0.26
Okayama	0.21
Hiroshima	0.05
Yamaguchi	-0.06
Tokushima	-0.15
Kagawa	-0.27
Ehime	-0.13
Kochi	-0.41
Fukuoka	-0.21
Saga	0.05
Nagasaki	0.14
Kumamoto	-0.11
Oita	0.17
Miyazaki, Kagoshima and Okinawa	0.26

Prefecture	*Amakara -do*
Hokkaido	-0.19
Aomori	-0.19
Iwate	-0.06
Miyagi	-0.13
Akita	-0.22
Yamagata	-0.21
Fukushima	-0.05
Ibaraki	-0.19
Tochigi	-0.09
Gunma	-0.15
Saitama	-0.16
Niigata	-0.21
Nagano	-0.17
Chiba	-0.14
Tokyo	-0.23
Kanagawa	-0.19
Yamanashi	-0.17
Toyama	-0.40
Ishikawa	-0.25
Fukui	-0.20
Gifu	-0.23
Shizuoka	-0.17
Aichi	-0.13
Mie	-0.06
Shiga	-0.15
Kyoto	-0.11
Osaka	0.04
Hyogo	-0.21
Nara	-0.26
Wakayama	-0.17

Figure 2. *Noutan-do* Map

"*Noutan-do*" = 94545/(1443+"*Nihonshu-do*")+1.88×"*San-do*"-68.54



Prefecture	*Noutan*-do
Hokkaido	-0.92
Aomori	-0.94
Iwate	-1.07
Miyagi	-0.93
Akita	-0.83
Yamagata	-1.02
Fukushima	-0.93
Ibaraki	-1.08
Tochigi	-1.03
Gunma	-1.27
Saitama	-1.22
Niigata	-1.32
Nagano	-1.19
Chiba	-1.16
Tokyo	-1.18
Kanagawa	-1.03
Yamanashi	-1.04
Toyama	-1.06
Ishikawa	-0.75
Fukui	-1.11
Gifu	-0.87
Shizuoka	-1.18
Aichi	-0.94
Mie	-0.90
Shiga	-0.96
Kyoto	-0.91
Osaka	-0.90
Hyogo	-0.72
Nara	-0.75
Wakayama	-0.88

Prefecture	*Noutan*-do
Tottori	-0.96
Shimane	-1.04
Okayama	-1.17
Hiroshima	-1.05
Yamaguchi	-1.07
Tokushima	-1.04
Kagawa	-0.93
Ehime	-1.06
Kochi	-1.06
Fukuoka	-0.77
Saga	-0.59
Nagasaki	-0.74
Kumamoto	-0.84
Oita	-0.97
Miyazaki, Kagoshima and Okinawa	-1.53

Figure 3. *Amakara-do* and *Noutan-do* of Ordinary Sake