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Foreword

Dear readers,

Biofuels make the biggest contribution to achieving the climate protection targets in the transport sector. They directly replace fossil fuels and reduce greenhouse gas emissions thanks to their comparatively low emission values.

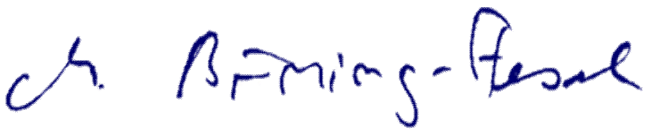
For 2022, almost four million tonnes of biofuels were registered for inclusion in the German greenhouse gas reduction quota ,avoiding emissions of around 11.6 million tonnes of CO_2 equivalent. Avoiding climate-damaging greenhouse gases is one of the most important goals in the realisation of the European project.

In the current quota year 2022, the average weighted emission saving of all used biofuels is 87 percent. Ten years earlier, in the quota year 2012, biofuels achieved an average value of 57 percent, thirty percent lower, and therefore significantly worse. The industry has demonstrably succeeded in realising enormous savings in cultivation, transport and production.

The current Evaluation and Experience Report of the Federal Office for Agriculture and Food, the 13th of this type, again provides a detailed overview of the applications for the greenhouse gas reduction quota as well as data on the conversion of liquid biomass into electricity under the Renewable Energy Sources Act. For the first time, this year's report contains information on the production sites: 80 percent of biofuels were produced in Europe, 13 percent in Asia. Comparisons with the previous year will be possible from next year.

In the current reporting year 2022, for the first time data is also recorded that takes into account solid and gaseous biomass fuels for electricity generation and thus the significant changes resulting from the implementation of the Renewable Energy Directive EU 2018/2001.

In 2022, sustainability certificates were issued for a total of 22,544 terajoules (6.3 terawatt hours). In light of the statutory transitional periods, this is overview is preliminary; the first meaningful analyses can be expected with the report for 2023.



Dr Margareta Büning-Fesel
President of the Federal Office for Food and Agriculture

1. Introduction

1.1 General information

On 21 December 2018, EU Directive 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (Renewable Energy Directive) was published in the Official Journal of the European Union. This Directive, also known as RED II, is a new version of the previous Renewable Energy Directive (RED I). One of the objectives of the European Union's energy policy is to promote renewable energy sources as a key element in reducing greenhouse gas emissions and thus honouring commitments made under international agreements, such as the 2015 Paris Agreement on climate change.

The Directive has the general objective of increasing the share of renewable energy within the EU in the areas of electricity, heating and cooling and transport to at least 32% of the Union's gross final energy consumption in 2030.

The Directive emphasises that the increased use of energy from renewable sources also plays a crucial role in securing energy supply, ensuring sustainable energy at affordable prices and promoting technological development and innovation.

The aim of this Directive is thus, among other things, to increase the share of energy from renewable sources within the EU, to reduce dependence on fossil fuels and to reduce greenhouse gas emissions.

Each member state must take measures and develop appropriate instruments at national level to achieve the targets set or national targets going beyond them.

The use of energy from renewable sources in the transport sector is considered to be an effective means which the EU can use to reduce its energy dependency for the transport sector, where the problem of security of energy supply is most acute.

Lower CO_2 -emissions can be achieved through biofuels and biomethane for transport and advanced biofuels produced from raw materials listed in an Annex to the Renewable Energy Directive, renewable liquid or gaseous transport fuels of non-biogenic origin and the use of renewable electricity in the transport sector. In this way, they can contribute to a cost-effective decarbonisation of the EU's transport sector and, inter alia, to the promotion of innovation, growth and jobs in the EU economy, the reduction of energy import dependency and the diversification of energy supply in this sector.

The obligation to ensure a minimum share of advanced biofuels is intended to promote the continuous development of advanced fuels, including biofuels.

Support schemes for renewable energy sources must take into account the supply of sustainable biomass in the EU Member States. They must also take due account of the principles of the circular economy and the waste hierarchy as set out in Directive 2008/98/EC of the European Parliament and of the Council. The aim must be to avoid unnecessary distortions of competition on the commodity markets. However, waste avoidance and recycling must continue to take priority.

It is in the EU's interest to promote voluntary international or national schemes that set standards for the sustainable production of biofuels, bioliquids and biomass fuels and certify that the production of biofuels, bioliquids and biomass fuels fulfils those standards. Therefore, such schemes should ensure that they are recognised as producing reliable findings and data if they meet appropriate standards of reliability, transparency and independence of audits.

In order to ensure the transparency and traceability of sustainable fuels, the Directive provides for the establishment of an EU database. While the Member States should be able to continue to use or set up national databases, those databases should be linked to the EU database to ensure the immediate transmission of data and the harmonisation of data flows.

The Renewable Energies Directive stipulates sustainability criteria for biofuels, bioliquids and biomass fuels:
Compliance with area-related criteria

Biofuels, bioliquids and biomass fuels must not be produced from raw materials obtained from land with high biodiversity value.

Biofuels, bioliquids and biomass fuels must not be produced from raw materials obtained from land with a high carbon stock.

- Biofuels and combustible biofuels must not be produced from raw materials obtained from land that was peat bog in January 2008, unless it has been demonstrated that the cultivation and harvesting of the raw material concerned does not require the drainage of previously undrained land.

- Biofuels, bioliquids and biomass fuels from forest biomass may only be produced from sustainably produced forest biomass.

Greenhouse gas reduction

The reduction in greenhouse gas emissions achieved through the use of biofuels, bioliquids and biomass fuels must be

- 50% for biofuels, biogas consumed in the transport sector and bioliquids produced in plants that were in operation on or before 5 October 2015
- at least 60% for biofuels, biogas consumed in the transport sector and bioliquids produced in plants that commenced operation between 6 October 2015 and 31 December 2020

- at least 65% for fuels, biogas consumed in the transport sector and bioliquids produced in plants that commence operation on or after 1 January 2021
- at least 70% for electricity, heating and cooling from biomass fuels in installations that commence operation between 1 January 2021 and 31 December 2025, and at least 80% in installations that commence operation after 1 January 2026[1]

Mass accounting

Economic operators are obliged to maintain a mass accounting system that

- allows supplies of raw materials or fuels with different sustainability characteristics and greenhouse gas saving properties to be mixed, e.g. in a container, a processing or logistics facility or a transmission and distribution infrastructure or site,
- allows deliveries of raw materials with different energy content to be mixed for further processing, provided that the volume of deliveries is adjusted according to their energy content,
- prescribes that the mixture must also be accompanied by information on the sustainability properties and properties relating to greenhouse gas savings and the respective volume of said supplies of raw materials or fuels, and
- provides that the sum of all supplies withdrawn from the mixture has the same sustainability characteristics in the same quantities as the sum of all supplies added to the mixture and that this balance is achieved within a reasonable period of time.

The EU Member States were required to implement the necessary legal and administrative provisions by 30 June 2021 at the latest. In Germany, this was implemented when the Biomass Electricity Sustainability Ordinance (BioSt-NachV) and the Biofuel Sustainability Ordinance (Biokraft-NachV) came into force on 8 December 2021.

The sustainability criteria are specified via certification schemes. These are recognised by the European Commission on application for a maximum of five years. The EU Commission publishes the implementing decisions on the recognition of voluntary schemes (EU schemes) for the area of the Renewable Energy Directive in the Official Journal of the EU. Further recognition must be applied for again. The BLE no longer recognises certification schemes.

[1] The emission accounting of biofuels and bioliquids is carried out in accordance with the methodology set out in Article 31 para. 1 in conjunction with Annexes V and VI of Directive (EU) 2018/2001, which corresponds to Section 6 of the Biofuel Sustainability Ordinance (Biokraft-NachV) and BioSt-NachV. After the upstream chain has passed on its own emissions, it is calculated by the certified biofuel producers and entered into the sustainability certificate. The fossil fuel equivalent to determine whether a biofuel is sustainable is 94 g CO_2eq/MJ. For liquid, gaseous or solid biomass fuels for electricity generation, the fossil comparative value is 183 g CO2eq/MJ.

Since 1 January 2015, obligated parties have had to meet a greenhouse gas reduction quota under the Federal Immission Control Act (BimSchG). Since that date, obligated parties have to ensure that the greenhouse gas emissions of the fossil petrol and fossil diesel fuels they place on the market plus the greenhouse gas emissions of the biofuels they place on the market are reduced by a specified percentage compared to their respective individually calculated reference value [2]. The reduction compared to the reference value is 7 percent for the 2022 quota year and increases to 25 percent by 2030.

As an accompanying measure to the introduction of the greenhouse gas reduction quota, the BLE regularly prepares evaluations for the Commission and the EU schemes. The evaluation informs the respective scheme about sustainability certificates with particularly low emission values that were entered into Nabisy by their scheme participants. If the emission value stated in the certificate is significantly below the so-called typical value or a comparable value, it appears as a "particularly low emission value" in this evaluation. The BLE provides data here that must not be confused with the data for this evaluation report. It thus supports the certification schemes in carrying out its own evaluations. The Commission receives a summary of the total number of relevant sustainability credentials in each of the schemes it recognises.

1.2 This report

As the competent authority, the BLE is obliged to submit an annual progress report to the Federal Government.

This report provides information on the use of sustainable biomass in Germany in the calendar/quota year 2022. The information on biofuel and combustible biofuel quantities is divided into the following areas:

- Biofuels counted towards the greenhouse gas reduction quota (Chapter 6)
- Combustible biofuels reported for conversion to electricity and feed-in under the EEG (Chapter 7)
- Biofuels and combustible biofuels that have not been used for energy purposes in Germany (Chapter 8)

The data basis for the evaluation report is the government database Sustainable Biomass System (Nabisy). This records all biofuel and combustible biofuel volumes relevant to the German market. Firstly, through the last interface (certified producers of biofuels and combustible biofuels). They record all the necessary

[2] The reference value against which the greenhouse gas reduction must be made is calculated by multiplying the baseline value by the energetic quantity of fossil petrol and fossil diesel fuel placed on the market by the obligated party plus the energetic quantity of biofuel placed on the market by the obligated party. The greenhouse gas emissions of fossil petrol and fossil diesel fuels are calculated by multiplying the baseline by the energetic quantity of fossil petrol and fossil diesel fuel placed on the market by the obligated party. The greenhouse gas emissions of biofuels are calculated by multiplying the greenhouse gas emissions in kilograms of carbon dioxide equivalent per gigajoule shown in the recognised certificates pursuant to Section 8 of the Biofuel Sustainability Ordinance by the energetic quantity of biofuel placed on the market by the obligated party.

data so that a sustainability certificate can be created. Afterwards, the biofuel is usually traded several times, with all economic operators along the trade chain requiring certification as well as an account in Nabisy to receive or pass on the certificate, which is now called a sustainability sub-certificate. The function is similar to that of online banking.

1.3 Summary of important results and events of the year 2022

- For 140,090 TJ of biofuels [previous year 138,737 TJ], an application was made to count towards the German greenhouse gas reduction quota. This corresponds to 3,988 kilotons (kt) of biofuel. Around 46% (64,181 TJ) of this came from raw material from the EU [previous year: just under 41% (56,285 TJ)].

- The source materials for all types of biofuel were mainly waste and residual materials (46% [previous year: 28%]), rapeseed (16%, [previous year: 16%]) and maize (12% [previous year: 11%]).

- The largest share of biofuel - around 59% - was accounted for by biodiesel (FAME) at 82,652 TJ, [previous year 61%, 84,776 TJ].

- The share of HVO fell to 30,954 TJ (22%), [previous year 30,656 TJ].

- The share of HVO fell to 20,991 TJ (14%), [previous year 19,725 TJ].

- The most frequently used raw material for biodiesel production was waste and residues, 41,162 TJ (50% [previous year 34%]), followed by palm oil at 22,259 TJ (27% [previous year 26%]) and rapeseed 9,267 TJ (11% [previous year 34%]).

- The most frequently used raw material for bioethanol production was maize, 16,526 TJ (53% [previous year: 48%]), wheat, 4,456 TJ (14% [previous year: 13%]) and sugar cane (13% [previous year: 10%]).

- The use of palm oil in biofuels increased by 68% in 2022 compared to the previous year.

- The total greenhouse gas emission saving of all biofuels (pure) was 87.4% compared to fossil fuels. This means that by using biofuels instead of fossil fuels, around 11.6 million tonnes of CO_2 equivalent were avoided.

- 26,111 TJ of liquid combustible biofuels were converted into electricity. An application was made for remuneration under the Renewable Energy Sources Act (EEG) for feeding the electricity into the grid. 90% [previous year: 87%] were thick lye from the pulp industry, 4% [previous year: 2%]) HVO (3% [previous year: 8%] vegetable oil and 3% [previous year: 4%] was FAME.

- The total greenhouse gas emission saving of all combustible biofuels (pure) was 94.2% compared to fossil fuels. This means that by using combustible biofuels instead of combustible fossil fuels, around 2.2 million tonnes of CO_2 equivalent were avoided.

- 133,753 TJ of the biofuels and combustible biofuels whose sustainability information was registered in Nabisy were derecognised to accounts of other states [previous year 127,441 TJ]. The corresponding sustainability certificates showed significantly higher emissions compared to the documents submitted in Germany.

- The certification bodies recognised by the BLE carried out 6,347 (previous year 3,732) certifications worldwide in the year under review. Of these, 6,347 (previous year 3,683) were in accordance with the requirements of the voluntary schemes and 1 (previous year 49) were in accordance with the requirements of the two DE schemes. These certifications are subject to monitoring by the BLE.

- Data for solid and gaseous biomass fuels for electricity generation were recorded for the first time. Here, sustainability certificates were issued for a total of 22,544 terajoules of electricity (6.3 gigawatt hours). Due to the application of statutory transitional periods in 2022, the data could not be collected in full. This is expected for the first time in 2023.

1.4 Methodology

This evaluation and progress report describes the existing processes and measures and analyses the data available to the BLE. This also includes issues relevant to implementation in Germany, such as the implementation of Directive (EU) 2018/2001 in other Member States and the recognition of voluntary schemes by the European Commission.

The results of the analysis are presented, compared and explained from different perspectives.

The following descriptions refer to the data submitted to the BLE by the economic operators within the scope of its function as the competent authority pursuant to Section 47 of the Biofuel Sustainability Ordinance (Biokraft-NachV) and Section 50 of the Biomass Electricity Sustainability Ordinance (BioSt NachV).

Data on the sustainability of supplied biofuels and combustible biofuels must be entered by the economic operators in the government database Sustainable Biomass System (Nabisy) if they are relevant for the German market. Precautionary quantities that are ultimately not used for energy purposes in Germany are included in Nabisy without being attributed to Germany. The economic operator is responsible for the correct accounting. In this way, the entered data are collected in an organised manner and systematically documented.

The information available here is intended to provide the basis for optimisation processes among decision-makers in politics and business.

As far as this is possible on the basis of the available data, the analysis is also intended to examine the effectiveness of the measures.

Where information on the number of Nabisy users or certifications is provided, it should be noted that operators have been counted several times in the case of parallel use of different certification schemes and in the case that operators are both producers and suppliers. It is therefore not possible to draw conclusions about the actual number of companies participating in the measures.

The objectives to be achieved with regard to the measurement of the impact are

- increasing the share of renewable energies in Germany's energy supply in the fuel sector and in electricity production from liquid biomass,
- reducing greenhouse gas emissions through the use of sustainable biomass and
- developing more efficient processes and raw materials for energy production from biomass

and any changes that occurred in the respective calendar year within the framework of BioSt-NachV and Biokraft-NachV are analysed.

Specifically, the areas of

- effectiveness of the sustainability ordinances in relation to the objectives pursued by the Federal Government

and

- optimisation of the implementation of the requirements of the Renewable Energy Directive

are analysed.

Suitable methods were chosen for the determination, measurement and evaluation of the data.

The following data were analysed:

1. Sustainability certificates and sustainability sub-certificates for which crediting against the biofuel quota obligation was applied for in the respective quota year.
- These are predominantly sustainability sub-certificates that have been generated from multiple divisions through the trade chain to the end user. These certificates were identified on the basis of the use notes set by the biofuel quota office.

2. Sustainability certificates and sustainability sub-certificates from the calender year 2022 that have been registered for remuneration under the EEG.
- These certificates were identified on the basis of the grid operators and the use notes set by the BLE.

3. Sustainability certificates and sustainability sub-certificates that have not been used for energy purposes in Germany.
- These certificates were identified based on the beneficiary account (charge-off account).

The data are considered and evaluated in terms of fuel type, quantity, energy content, source, raw materials used for production and finally the emissions that have been generated. Where graphic representations do not seem appropriate, tables are used.

The focus is primarily on the status as of 31/12/2022 and the development of the implementation of the measure over time (annually) in relation to the baseline values in the form of a statistical comparison.

In this context, the control measures of the BLE or administrative procedures are also analysed, evaluated and optimised.

Differences in the totals in this report are due to rounding.

2. Responsibilities of the BLE

The Federal Office for Food and Agriculture (BLE) is the competent authority in Germany for the implementation of the sustainability criteria of the Renewable Energy Directive in the legally regulated area of sustainability ordinances.

In the field of sustainable bioenergy, the BLE is responsible, among other things, for

- the recognition and monitoring of certification bodies in accordance with the sustainability ordinances,
- the management of data on the sustainability of biofuels or liquid biomass in the web-based government database Sustainable Biomass System (Nabisy) and the issuing of sustainability certificates at the request of the economic operators,
- the regular evaluation of the sustainability ordinances and the annual preparation of a progress report for the Federal Government,
- in the biofuel sector - the provision of data for the biofuel quota office and the main customs offices that are required for the crediting of biofuels to the greenhouse gas reduction quota,
- in the bioelectricity sector - the provision of data for the grid operators, which is necessary for the EEG remuneration and the bonus for renewable raw materials (NawaRo bonus) of the plant operators,
- in the emissions trading sector - the provision of data for the German Emissions Trading Authority DEHSt),
- the regular preparation of reports on particularly low emissions of the sustainability certificates for EU schemes, DE schemes and for submission to the EU Commission.

In addition, the BLE must carry out the following regular measures to implement the sustainability ordinances within the scope of its responsibility pursuant to Section 50 of BioSt-NachV and Section 47 of Biokraft-NachV:

- Conducting office audits at the certification bodies generally once a year (office audits) and risk-based and random assessments of the certification bodies' audit activities (witness audits),
- Maintenance and expansion of the BLE website with information and documents in German and English,
- Maintenance and further development of a consistent system for the recognition of certification bodies and for monitoring compliance with legal regulations,
- Maintenance and further development of the government database Nabisy for documenting the type and source of biofuels and sustainability certificates, documentation and plausibility checks of the data on the sustainability of biofuel deliveries, data exchange with databases of other Member States,
- Maintenance and expansion of the information register pursuant to Section 66 of BioSt-NachV and Section 60 of Biokraft-NachV,
- Organisation of the meetings of the Sustainable Bioenergy Advisory Council,
- Events with certification bodies for the exchange of experience and information,
- Presentations at information events for multipliers such as associations, certification schemes, certification bodies, country representatives and competent authorities of other Member States,
- Presence at various trade events and fairs,
- Cooperation and coordination of implementation with the implementing authorities of other Member States in the bodies of the REFUREC (Renewable Fuels Regulators Club) and as an observer in the relevant working groups of CA-RES (ConcertedAction-Renewable Energy Sources Directive),
- Training of employees of the BLE's audit service who work as auditors in the field of sustainable biomass production,
- Training of users for the Nabisy web application.

3. Certification schemes

The Renewable Energy Directive and its national implementation through the sustainability ordinances require compliance with the sustainability requirements for biomass as well as for the biofuels and combustible biofuels produced from it by all economic operators along the entire value chain. It is the task of the voluntary schemes recognised by the European Commission or national schemes of other Member States to specify and ensure this.

Certification schemes must ensure organisational compliance with the requirements of the Renewable Energy Directive and the national law adopted for its implementation for the production and supply of biomass. Their system documents contain specifications of the requirements for the proof of their fulfilment as well as for the monitoring of the proof.

3.2 Recognised certification schemes in accordance with Section 2 No. 3 BioSt-NachV or Biokraft-NachV

According to Article 30 para. 4 of Directive (EU) 2018/2001, the European Commission may decide that voluntary national or international schemes setting standards for the production of biomass products shall include accurate data for the purposes of Article 27 para. 1. These data may be used as evidence that supplies of biofuels, bioliquids and biomass fuels comply with the sustainability criteria set out in Article 29 para. 2 to 7 and (10) of the Directive. The recognition of these voluntary schemes is valid for a maximum of five years.

According to Section 2 para. 3 of BioSt-NachV and Biokraft-NachV, these voluntary schemes are recognised in Germany as long as and to the extent that they are recognised by the EU Commission.

The currently recognised voluntary certification schemes are published on the website of the European Commission under the following link:

https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/voluntary-schemes_en

3.3 National schemes of other Member States

National schemes of other Member States also ensure organisational compliance with the requirements according to the sustainability criteria of the Renewable Energy Directive for the production and supply of biomass. They regulate the specifications of the requirements for the proof of their fulfilment as well as for the monitoring of the proof.
Member States may establish national schemes to verify compliance with the sustainability and greenhouse gas saving criteria set out in Article 29 para. 2 to 7 and 10 with the involvement of the competent national authorities.
Member States can report their national system to the Commission for evaluation.

The Austrian Agricultural Certification Scheme (AACS) is currently the only recognised national certification scheme.

In 2022, only data from the national scheme from Austria were available in Nabisy. Companies located on Austrian territory are obliged to register sustainability data in the Austrian database elNa.

3.4 Economic operators

In the field of sustainable bioenergy, all economic operators along the entire value chain work according to the specifications of certification schemes recognised by the Commission, with the exception of users (plant operators and parties required to provide evidence). In addition to the sustainability certificate, these must comply with other national regulations in order to receive remuneration from the Renewable Energy Sources Act or credit towards the biofuel quota.

In detail, the following economic operators must be considered:

Growers

Growers are agricultural holdings and premises that grow and harvest biomass.

First gathering points

First gathering points are companies and premises (companies) that receive the biomass required for the production of biofuels for the first time from the companies that cultivate and harvest it for the purpose of further trading (e.g. agricultural trade).

Producers

Businesses or private households that generate waste and residual materials.

Collectors

Collectors are businesses and business premises (businesses) that first collect the biomass required for the production of biofuels in the form of biogenic waste and residues from the businesses or private households that generate waste and residues for the purpose of further trade.

Conversion operations

A distinction must be made here between two categories:

a) Businesses and premises that process biomass from sustainable cultivation or from biogenic waste or residues and feed the semi-finished products obtained to a further processing stage for the purpose of biofuel or combustible biofuel production (e.g. oil mills, biogas plants, fat processing plants or other plants whose process step is not sufficient to achieve the quality level required for end use).

b) Businesses and premises bringing liquid or gaseous biomass to the quality level required for end use. (e.g. oil mills, esterification, ethanol, hydrogenation or biogas processing plants).

The business requiring certification along the production and supply chain within the framework of the certification schemes are referred to as interfaces. Here, first gathering points and collectors are considered the first interface, and conversion operations, which bring the biomass to the quality level of its use, are considered the last interface.

Supplier or dealer in the value chain

Suppliers are economic operators between the first gathering points and the conversion operations or between the final interface and the biofuel distributor or the plant operator who feeds in electricity generated from biofuels. If suppliers are not subject to customs supervision after the last cut, they must be participants in an EU-recognised voluntary scheme.

Plant operators

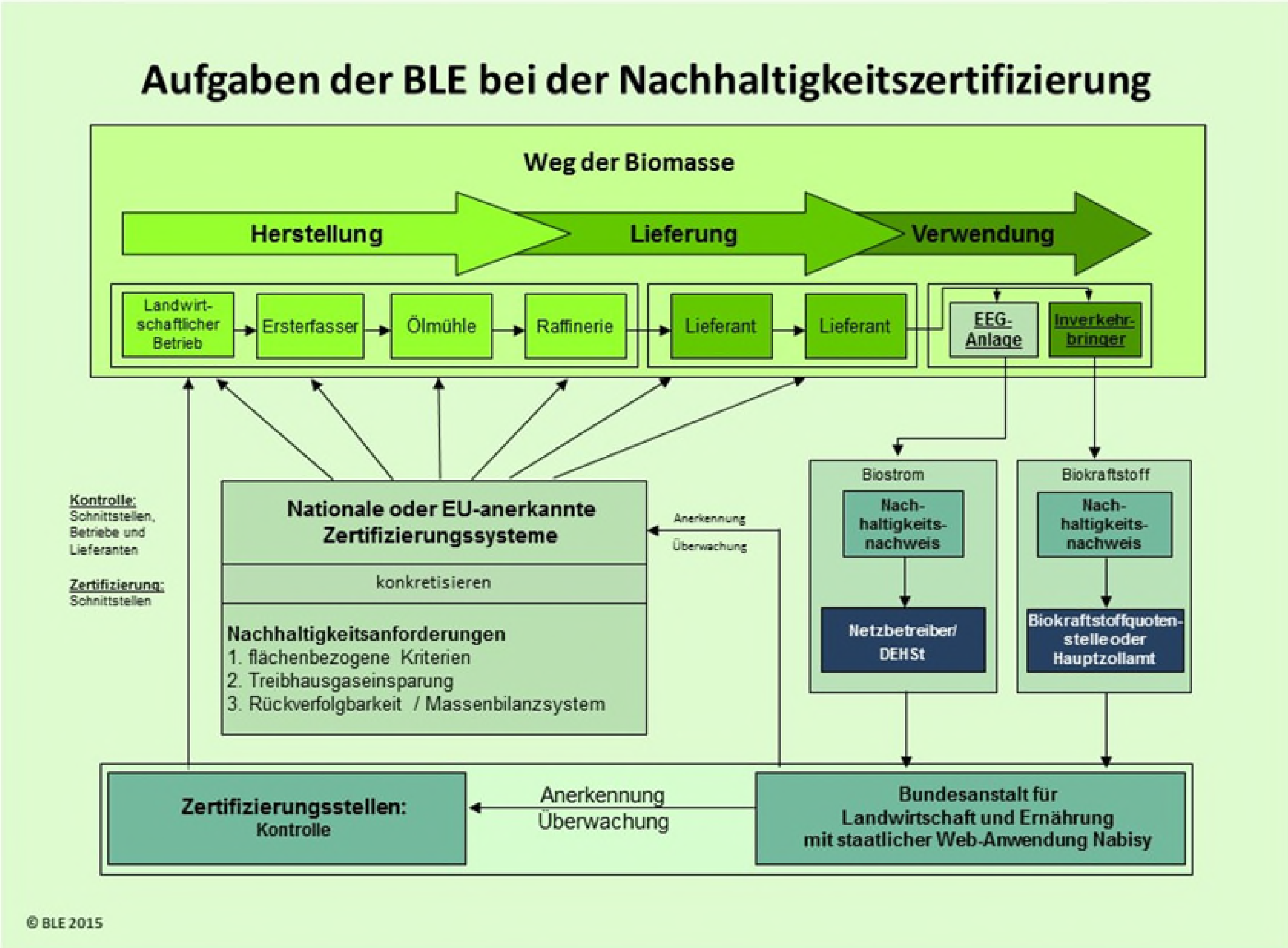
Plant operators are economic operators who use equipment for the generation of electricity from renewable energies and feed the electricity into the grid, independently of their own property. For this, the plant operators receive an EEG payment from their grid operator upon submission of corresponding sustainability certificates.

Persons required to obtain certification

The parties required to obtain certification are

1. obligated parties pursuant to Section 37a para. 4 of the Federal Immission Control Act or
2. third parties pursuant to Section 37a para. 6 or 7 of the Federal Immission Control Act.

Figure 1



Aufgaben der BLE bei der Nachhaltigkeitszertifizierung
Weg der Biomasse
Herstellung
Lieferung
Verwendung
Landwirt-schaftlicher Betrieb
Ersterfasser
Ölmühle
Raffinerie
Lieferant
Lieferant
EEG-Anlage
Inverkehr-bringer
Kontrolle: Schnittstellen, Betriebe und Lieferanten
Zertifizierung: Schnittstellen
Nationale oder EU-anerkannte Zertifizierungssysteme
konkretisieren
Nachhaltigkeitsanforderungen
1. flächenbezogene Kriterien
2. Treibhausgaseinsparung
3. Rückverfolgbarkeit / Massenbilanzsystem
Anerkennung
Überwachung
Biostrom
Nach-haltigkeits-nachweis
Netzbetreiber/ DEHSt
Biokraftstoff
Nach-haltigkeits-nachweis
Biokraftstoffquoten-stelle oder Hauptzollamt
Zertifizierungsstellen:
Kontrolle
Anerkennung
Überwachung
Bundesanstalt für Landwirtschaft und Ernährung mit staatlicher Web-Anwendung Nabisy
© BLE 2015

3.4.1 Scheme participants reported to the BLE

Within the framework of the Sustainability Ordinances, certification schemes are deemed to be informally recognised by Germany if they are recognised on the basis of Article 30 para. 4 or 6 of Directive (EU) 2018/2001 and are published as such on the European Commission's transparency platform.
The certification schemes notify the BLE of the scheme participants that are relevant for the German market   Biofuels, bioliquids or biomass fuels relevant to the German market and require Nabisy access.

As of the reporting date 31/12/2022, 7,126 participants along the value chain who produced or traded in biofuels or combustible biofuels were registered with the BLE.

The total figures result from all participants reported to the BLE. If a company fills different roles at the same time, e.g. producer of biofuel and supplier according to the last interface and/or it is a participant in several certification schemes, multiple counts may occur.

3.4.2 Suppliers under German customs supervision

If suppliers are under customs supervision after the last interface as defined in Section 11 para. 3 No. 2 of Biokraft-NachV, they do not necessarily have to be participants in a voluntary scheme recognised by the European Commission. The prerequisite for this exemption is that the mass accounting system of suppliers is subject to regular audits by the main customs offices for reasons of tax monitoring in accordance with the Energy Tax Act or monitoring of the biofuel quota obligation in accordance with the Federal Immission Control Act and that the suppliers document the receipt and transfer of the biofuels with place and date including the details of the sustainability certificate in the electronic database Nabisy.

In the application procedure for access to Nabisy, the BLE has the main customs office responsible for the supplier's registered office confirm that the applicant is actually under customs supervision. As soon as this certificate is available, access is granted to the economic operator.

As of 31/12/2022, 420 suppliers under customs supervision were registered in Nabisy.

3.4.3 Participants in national schemes of other Member States

Some of the participants deposited in Nabisy belong to national schemes of their Member States. As of the reporting date 31/12/2022, a total of 240 participants (previous year: 210) of national systems.

4. Certification bodies

Certification bodies are independent natural or legal persons who are members of a recognised certification scheme

1. that issue certificates for interfaces and suppliers if they fulfil the requirements of the sustainability regulations, and
2. that monitor the fulfilment of the requirements of the sustainability regulations by companies, interfaces and suppliers.

In Germany, the BLE is responsible for the recognition and monitoring of certification bodies in the context of sustainable biomass production.

Certificates are attestations of conformity that interfaces or suppliers, including all companies directly or indirectly involved in the production, storage or transport and distribution of biomass, biofuels, biomass fuels or bioliquids, fulfil the requirements of this Ordinance.

According to Section 25 No. 1 and 2 and Section 41 of BioSt-NachV as well as Section 27 No. 1 and 2 and Section 43 of Biokraft NachV, the BLE recognised the following number of certification bodies on 31/12/2022:

Table 1: Recognised certification bodies

Total certification bodies (reporting date 31/12/2022)	33
permanently recognised	28
of which provisionally recognised	5

Certification bodies can initially be granted provisional recognition as part of the recognition procedure, which enables them to commence their certification activities. This provisional recognition can only be replaced by a permanent recognition after a subsequent assessment of the certification body's office by the inspection service of the BLE (office audit).

The current list of recognised certification bodies can be viewed at

http://www.ble.de/Biomasse

.

BLE assessors carry out witness audits of the certification bodies worldwide, insofar as the countries have allowed the BLE to perform such audits on their territory.

In 2022, the BLE monitored 108 (previous year: 96) of the certification audits carried out by the certification bodies. 68 of these audits concerned economic operators in Germany, the remaining 40 audits concerned economic operators in other countries within and outside Europe.

Table 2: Permanently recognised certification bodies (as of 31/12/2022)

Recognised certification bodies	permanently recognised
SGS Germany GmbH, Germany	23/08/2010
DQS CFS GmbH, Germany	23/08/2010
TÜV SÜD GmbH, Germany	23/08/2010
GUT Certifizierungsgesellschaft mbH, Germany	23/08/2010
Global-Creative-Energy GmbH, Germany	30/08/2010
Control Union Certifications Germany GmbH	30/08/2010
Agrizert Zertifizierungs GmbH, Germany	29/09/2010
IFTA AG, Germany	01/12/2010
DEKRA Certification GmbH, Germany	01/12/2010
LACON GmbH, Germany	15/12/2010
ÖHMI Euro Cert GmbH, Germany	20/12/2010
QAL Umweltgutachter GmbH, Germany	20/12/2010
Agro Vet GmbH, Austria	21/12/2010
ASG cert GmbH, Germany	14/03/2011
TÜV Nord Cert GmbH, Germany	23/09/2011
proTerra GmbH, Germany	27/09/2011
ELUcert GmbH, Germany	17/04/2013
SC@PE international ltd.	05/06/2014
DIN CERTCO Gesellschaft für Konformitätsbewertung mbH	04/02/2015
SicZert Zertifizierungen GmbH	26/03/2015
Auditcert GmbH Umweltgutachterorganisation	25/09/2020
verico SCE	28/02/2022
greencert. Umweltgutachter GmbH	24/05/2022
IFU-CERT Zertifizierungsgesellschaft für Managementsysteme	15/06/2022
ESC Cert GmbH	22/06/2022
Müller-BBM Cert Umweltgutachter GmbH	19/07/2022
Normec Zertifizierung Umweltgutachter GmbH	25/08/2022
OmniCert Umweltgutachter GmbH	31/08/2022
Intechnica Cert GmbH Umweltgutachterorganisation	31/08/2022
Score GmbH Umweltgutachter	20/09/2022
ZER-QMS, Zertifizierungsstelle, Qualitäts- und Umweltgutachter GmbH	05/10/2022
ValueCert Hub & Partner mbB	03/11/2022
GFA Certification GmbH	03/11/2022

4.1 Certifications under the specifications of certification schemes

In Germany, the transposition of Directive EU 2018/2001 into national law provides for a certification obligation for certain economic operators along the value chain for production, so-called interfaces. These include first gathering points/collectors, suppliers and all conversion operations.

The BLE is responsible for the recognition and supervision of certification bodies that are based in Germany and decide on certification there.

Certifications were carried out worldwide according to the specifications of the certification schemes recognised by the EU Commission. In the reporting year, 6,346 (previous year: 3,683) initial and recertifications were reported to the BLE for businesses certified according to EU scheme requirements.

5. Government database Nabisy and sustainability certificates

5.1 Sustainable Biomass System (Nabisy)

Commission Decision 2011/13/EU of 12 January 2011 requires Member State operators to submit certain information on the sustainability of any supply of biofuels, bioliquids or electricity where this may become relevant to the market concerned.

This is done electronically for the German market. For each consignment of biofuels or bioliquids or biomass fuels, this information is to be deposited by the economic operators in the web-based state database Nabisy. Sustainability certificates or sustainability sub-certificates contain the data stored in Nabisy on the fulfilment of sustainability criteria and must be passed on in the supply chain.

In the reporting year, 2,468 account (previous year: 2,312) movements were registered. These are exclusively the accounts of businesses from the last interface onwards and the following supply chain.

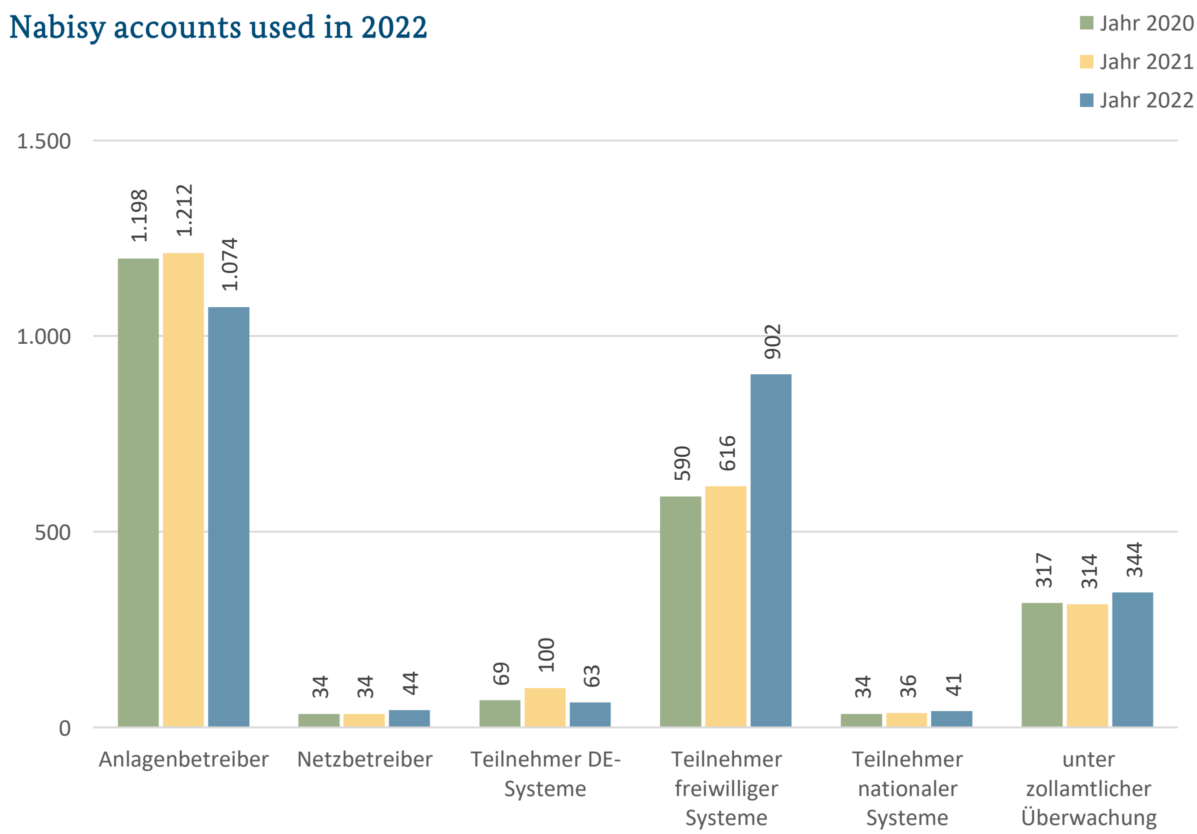


Figure 2

5.2 Certificates

Only the producer of a (delivery) quantity of biofuel, liquid biofuel or electricity produced from biomass fuel can issue a sustainability certificate. They are a so-called "last interface". By issuing the certificate in Nabisy, he ensures that the delivery can be used on the German market. If a subsequent part of the value chain, e.g. a supplier, decides that the goods are to be used outside Germany or for other purposes, it must transfer the corresponding evidence to the corresponding derecognition account.

The submission of sustainability certificates or sustainability sub-certificates to the customs authority is a prerequisite for the crediting of biofuels towards the greenhouse gas reduction obligation of the distributor. Plant operators can only claim remuneration under the Renewable Energy Sources Act (EEG) for electricity generated from biomass and bioliquids fed into the grid if they submit sustainability certificate or sustainability sub-certificate.

Sustainability certificates are issued by certified economic operators who process the liquid or gaseous biomass to the required quality level for use as biofuel or who produce electricity from the biomass-biofuels used (issuers). In the sustainability ordinances, these economic operators are referred to as the final interface. This terminology is not used by the systems recognised by the EU Commission. Therefore, this report generally refers to the economic operator issuing the sustainability certificate.

An issued sustainability certificate identifies a quantity of biofuel or bioliquids or the electricity as sustainable. If biofuels, combustible biofuels or biomass fuels are traded in the supply chain up to the party required to obtain certification or the plant operator, the respective quantities are passed on according to demand.

In order to be able to map this, it is necessary to split a sustainability certificate accordingly or to rebook it to a customer's supplier account. This results in sustainability sub-certificates.

Economic operators that process biomass fuels into electricity and issue a sustainability certificate for this usually issue it directly to the grid operator.

Nabisy processes sustainability certificates ("basic certificates", which can only be issued by producers) and sustainability sub-certificates s ("follow-up certificates", which are created by every supplier action): rebooking and sharing).

In 2022, 36,885 sustainability certificates (previous year 27,107) were entered into Nabisy by 482 producers worldwide.

Table 3: Sustainability certificates issued

Location of the manufacturers	Number of manufacturers	Number of sustainability certificates issued
Germany	242	20,486
European Union	105	13,500
Third countries	135	2,899
Total	**482**	**36,885**

The current templates for sustainability certificates (basic certificate) and sustainability sub-certificates (follow-up certificate) for biofuels and bioliquids are shown below.

NACHHALTIGKEITSNACHWEIS

für flüssige Biomasse nach §§ 15 ff. Biomassestrom-Nachhaltigkeitsverordnung (BioSt-NachV) oder für Biokraftstoffe nach §§ 15 ff. Biokraftstoff-Nachhaltigkeitsverordnung (Biokraft-NachV)

Nummer des Nachweises: EU-BM-14-213-10000002-NNw-00000708

Schnittstelle:	Empfänger:	Zertifizierungssystem:
EU-BM-14-SSt-00000002	Lieferant/trader EU 3, Musterstadt, EU-BM-14-Lfr-10000003	Nabisy Test Voluntary Scheme, null, EU-BM-14

1. Allgemeine Angaben zur Biomasse / zum Biokraftstoff:

Art: 100,00% FAME Anbauland / Entstehungsland*: PL

Menge: 111,221 m³ Energiegehalt (MJ): 3.670.293

Die flüssige Biomasse / der Biokraftstoff ist aus Abfall oder aus Reststoffen hergestellt worden und die Reststoffe oder Abfälle
- stammen nicht aus der Land-, Forst- oder Fischwirtschaft oder aus Aquakulturen. ☐ ja ☒ nein
- stammen aus der Land-, Forst- oder Fischwirtschaft oder aus Aquakulturen. ☐ ja

2. Nachhaltiger Anbau der Biomasse bzw. nachhaltige Herstellung des Biokraftstoffs nach den §§ 4 – 7 BioSt-NachV / Biokraft-NachV:

Die Biomasse erfüllt die Anforderungen nach den §§ 4 – 7 BioSt-NachV / Biokraft-NachV ☒ ja ☐ nein

3. Treibhausgas-Minderung nach § 8 BioSt-NachV / Biokraft-NachV:

E =	e_{ec}	+	e_l**	+	e_p	+	e_{td}	+	e_u	-	e_{sca}	-	e_{ccs}	-	e_{ccr}	-	e_{ee}		(g CO2eq/MJ)
E =	19,9	+		+	11,2	+	1,0	+	0,0	-		-		-		-		=	32,1

** e_l beinhaltet den Bonus für die Umwandlung stark verschmutzter oder degradierter Flächen ☐ ja ☐ nein

THG-Minderung bei Verwendung

61,7% als Kraftstoff [83,8 (g CO2eq/MJ)]

58,3% zur Wärmeerzeugung [77 (g CO2eq/MJ)]

64,7% zur Stromerzeugung [91 (g CO2eq/MJ)]

62,2% Kraft-Wärme-Kopplung [85 (g CO2eq/MJ)]

Erfüllung der Minderung bei einem Einsatz in folgender Region (z. B. Deutschland, EU): Deutschland

Die Erstinbetriebnahme der Anlage zur Herstellung des Biokraft - oder Biobrennstoffs erfolgte nach dem 5. Oktober 2015 ☐ ja ☒ nein

Lieferung auf Grund eines Massenbilanzsystems nach § 17 BioSt-NachV / Biokraft-NachV:

☒ Die Lieferung ist in einem Massenbilanzsystem dokumentiert worden.
- ☐ Die Dokumentation erfolgt über die elektronische Datenbank der BLE
- ☒ Die Dokumentation erfolgte nach den Anforderungen des folgenden Zertifizierungssystems: REDcert GmbH
- ☐ Die Dokumentation erfolgt nach § 17 Abs. 3 Biokraft-NachV.

Der Nachhaltigkeitsnachweis wurde elektronisch erstellt und ist ohne Unterschrift gültig.

Ort und Datum der Ausstellung: Pritzwalk OT Falkenhagen, 11.04.2019

*** Hinweis:**

Dieser Nachweis wurde in der Web-Anwendung „Nabisy" erstellt. Er ist mit einer eindeutigen ID-Nummer versehen. Die Daten zur Nachhaltigkeit des Biokraft- oder Biobrennstoffs sind in der Nabisy-Datenbank gespeichert. Die Echtheit des Nachweises kann durch zuständigen Stellen in EU-Mitgliedsstaaten und Efta-Staaten überprüft werden.

Vordruck der Bundesanstalt für Landwirtschaft und Ernährung

Figure 3

Bundesanstalt für
Landwirtschaft und Ernährung

Zusatzinformation zu EU-BM-14-213-10000002-NNw-00000708

Allgemeine Daten

Ausstellungsdatum	11.04.2019
Lieferdatum	31.03.2019
Empfänger	Lieferant/trader EU 3 Musterweg 3 10003 Musterstadt

Menge

Menge	111,221 m³
Energiegehalt	3.670.293 MJ

Art der Biomasse

Code / Kürzel	Attribut Annex IX*	Anteil (%)	Anbauland	ILUC
38260010-1 / Biodiesel_Raps	Conv	100,00	PL	55,00

* Hinweis: Adv - Fortschrittlich, Conv - Konventionell, - - Weder Adv noch Conv

Nicht zugeordnete Anbauländer

Zusatzinformationen zur THG Emission

Treibhausgas-Emissionen	32,1 g CO2eq/MJ	inkl. mittl. Schätzwert ILUC	87,1 g CO2eq/MJ

Figure 4

NACHHALTIGKEITS-TEILNACHWEIS

für flüssige Biomasse nach §§ 15 ff. Biomassestrom-Nachhaltigkeitsverordnung (BioSt-NachV) oder für Biokraftstoffe nach §§ 15 ff. Biokraftstoff-Nachhaltigkeitsverordnung (Biokraft-NachV)

Nummer des Teilnachweises: EU-BM-14-Lfr-10000007-999-12345678-NTNw-10007199

Nummer des Basis-Nachweises: EU-BM-14-213-10000002-NNw-00000708

03/19-Musterstadt

Aussteller: BLE

Schnittstelle:	Empfänger:	Zertifizierungssystem:
EU-BM-14-SSt-00000002	Lieferant/trader EU 7, Musterstadt, EU-BM-14-Lfr-10000007	Nabisy Test Voluntary Scheme, null, EU-BM-14

1. Allgemeine Angaben zur Biomasse / zum Biokraftstoff:

Art: 100,00% FAME — Anbauland / Entstehungsland*: PL

Menge: 61,205 m³ — Energiegehalt (MJ): 2.019.765

Die flüssige Biomasse / der Biokraftstoff ist aus Abfall oder aus Reststoffen hergestellt worden und die Reststoffe oder Abfälle
- stammen nicht aus der Land-, Forst- oder Fischwirtschaft oder aus Aquakulturen. ☐ ja ☒ nein
- stammen aus der Land-, Forst- oder Fischwirtschaft oder aus Aquakulturen. ☐ ja

2. Nachhaltiger Anbau der Biomasse bzw. nachhaltige Herstellung des Biokraftstoffs nach den §§ 4 – 7 BioSt-NachV / Biokraft-NachV:

Die Biomasse erfüllt die Anforderungen nach den §§ 4 – 7 BioSt-NachV / Biokraft-NachV ☒ ja ☐ nein

3. Treibhausgas-Minderung nach § 8 BioSt-NachV / Biokraft-NachV:

E =	e_{ec}	+	e_l**	+	e_p	+	e_{td}	+	e_u	-	e_{sca}	-	e_{ccs}	-	e_{ccr}	-	e_{ee}		(g CO2eq/MJ)
E =	19,9	+		+	11,2	+	1,0	+	0,0	-		-		-		-		=	32,1

** e_l beinhaltet den Bonus für die Umwandlung stark verschmutzter oder degradierter Flächen ☐ ja ☐ nein

THG-Minderung bei Verwendung

61,7% als Kraftstoff [83,8 (g CO2eq/MJ)] — 58,3% zur Wärmeerzeugung [77 (g CO2eq/MJ)]

64,7% zur Stromerzeugung [91 (g CO2eq/MJ)] — 62,2% Kraft-Wärme-Kopplung [85 (g CO2eq/MJ)]

Erfüllung der Minderung bei einem Einsatz in folgender Region (z. B. Deutschland, EU): Deutschland

Die Erstinbetriebnahme der Anlage zur Herstellung des Biokraft - oder Biobrennstoffs erfolgte nach dem 5. Oktober 2015 ☐ ja ☒ nein

Lieferung auf Grund eines Massenbilanzsystems nach § 17 BioSt-NachV / Biokraft-NachV:

☒ Die Lieferung ist in einem Massenbilanzsystem dokumentiert worden.
- ☒ Die Dokumentation erfolgt über die elektronischen Datenbank der BLE
- ☐ Die Dokumentation erfolgte nach den Anforderungen des folgenden Zertifizierungssystems:
- ☒ Die Dokumentation erfolgt nach § 17 Abs. 3 Biokraft-NachV.

Letzter Lieferant (Name, Adresse): Lieferant/trader EU 3, Musterstadt

Der Nachhaltigkeits-Teilnachweis wurde elektronisch erstellt und ist ohne Unterschrift gültig. **Ort und Datum der Ausstellung:** Bonn, 23.04.2019

*** Hinweis:**

Dieser Nachweis wurde in der Web-Anwendung „Nabisy" erstellt. Er ist mit einer eindeutigen ID-Nummer versehen. Die Daten zur Nachhaltigkeit des Biokraft- oder Biobrennstoffs sind in der Nabisy-Datenbank gespeichert. Die Echtheit des Nachweises kann durch zuständigen Stellen in EU-Mitgliedsstaaten und Efta-Staaten überprüft werden.

Vordruck der Bundesanstalt für Landwirtschaft und Ernährung

Figure 5

Bundesanstalt für
Landwirtschaft und Ernährung

Zusatzinformation zu **EU-BM-14-Lfr-10000007-999-12345678-NTNw-10007199**

Allgemeine Daten

Ausstellungsdatum	23.04.2019
Lieferdatum	31.03.2019
Empfänger	Lieferant/trader EU 7 Musterweg 7 10007 Musterstadt

Menge

Menge	61,205 m³
Energiegehalt	2.019.765 MJ

Art der Biomasse

Code / Kürzel	Attribut Annex IX*	Anteil (%)	Anbauland	ILUC
38260010-1 / Biodiesel_Raps	Conv	100,00	PL	55,00

* Hinweis: Adv - Fortschrittlich, Conv - Konventionell, - - Weder Adv noch Conv

Nicht zugeordnete Anbauländer

Zusatzinformationen zur THG Emission

Treibhausgas-Emissionen	32,1 g CO2eq/MJ	inkl. mittl. Schätzwert ILUC	87,1 g CO2eq/MJ

Figure 6

6. Biofuels

The following graph shows the energy quantities (TJ) of biofuels in Germany for which crediting towards the 2022 greenhouse gas reduction quota was requested.

The data basis is the certification deposited in Nabisy, which is provided with corresponding use notes by the Federal Fiscal Authority.

It should be expressly noted here that statements can only be made about the quantities and energy contents applied for. Based on the available data, it is not possible to say whether all the quantities and energy contents shown actually lead to the quota obligation being taken into account.

In the reporting year 2022, slightly more biofuels were declared for quota crediting than in the previous year. The proportion produced from waste and residual materials rose to a record level of over 46%.

Annual comparison of all biofuels [TJ]

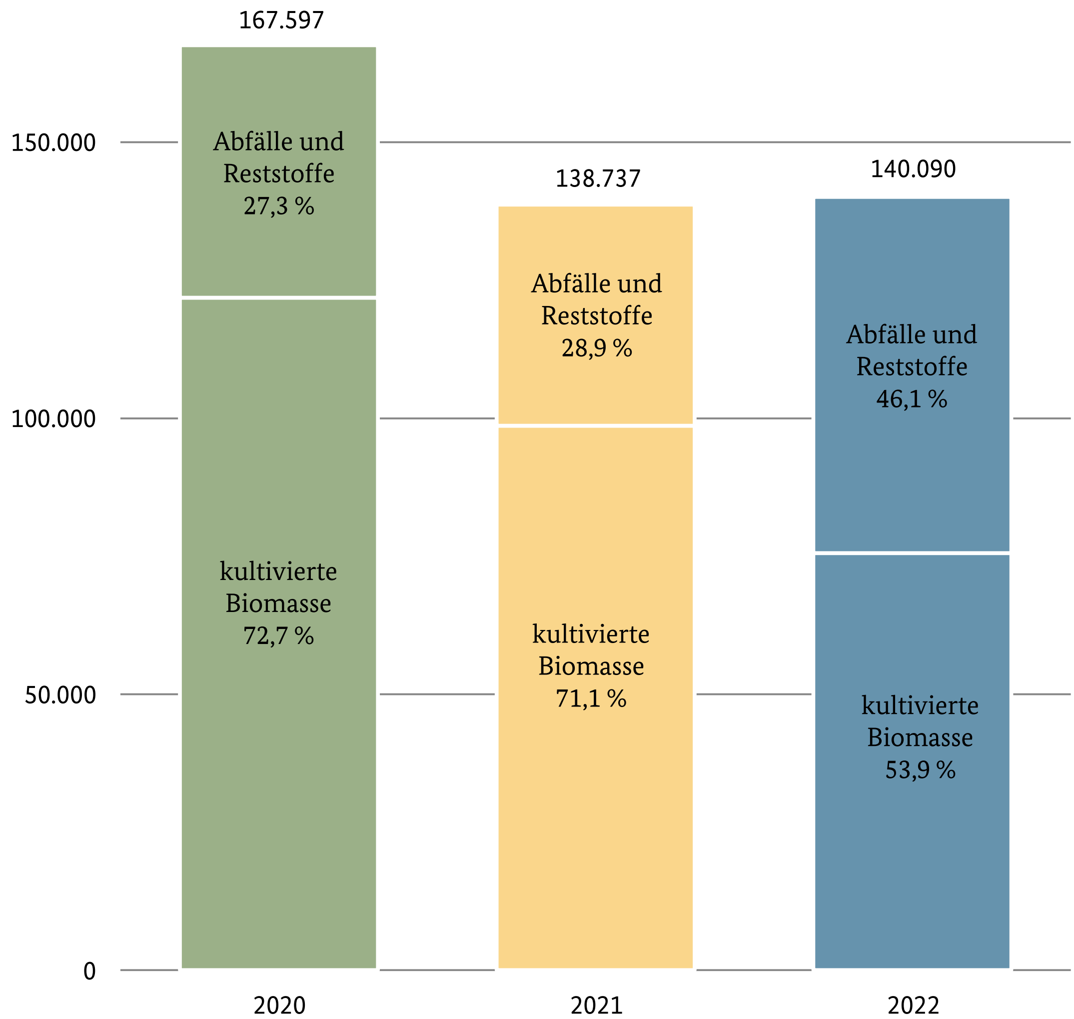


Figure 7

6.1 Source of raw materials

The amount of biofuels produced from Asian raw product decreased significantly (-20%). This deficit was mainly offset by quantities of raw materials from Europe, South America and Australia. The increase in South American biofuels is the most significant (+69%).

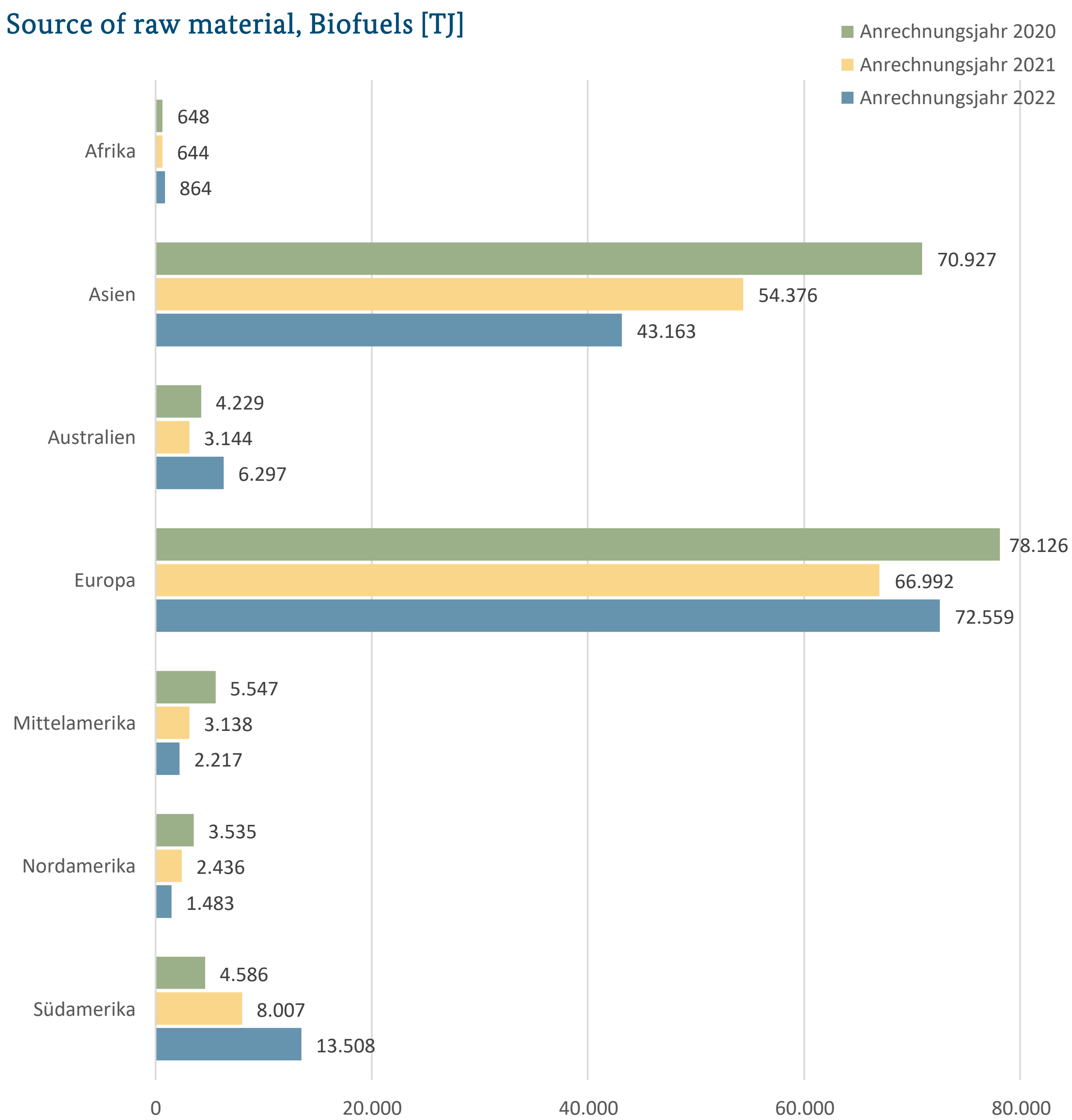


Figure 8

Biofuels produced from German raw materials recorded a decline of just under 14%. In turn, the total volume from the European Union increased. This more than compensated for the reduction in the German share, which has the strongest market position.

In turn, the total volume from the European Union increased by nearly 8k terajoules.

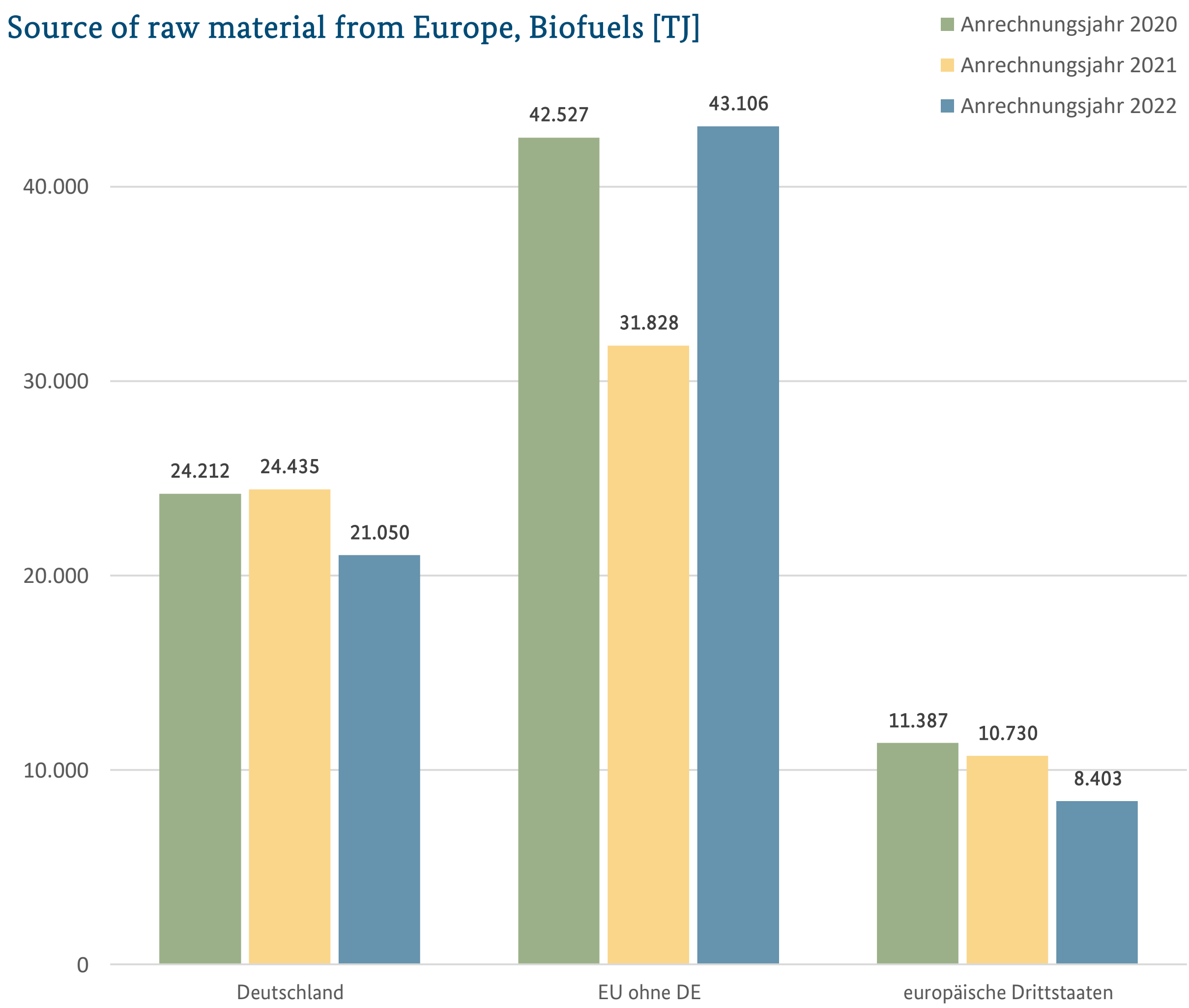


Figure 9

Around 33% of all biofuels whose raw product came from the European Union were of German origin. In the previous year, the proportion was 43%.

Source of raw materials 2022 from the EU, Biofuels [TJ]

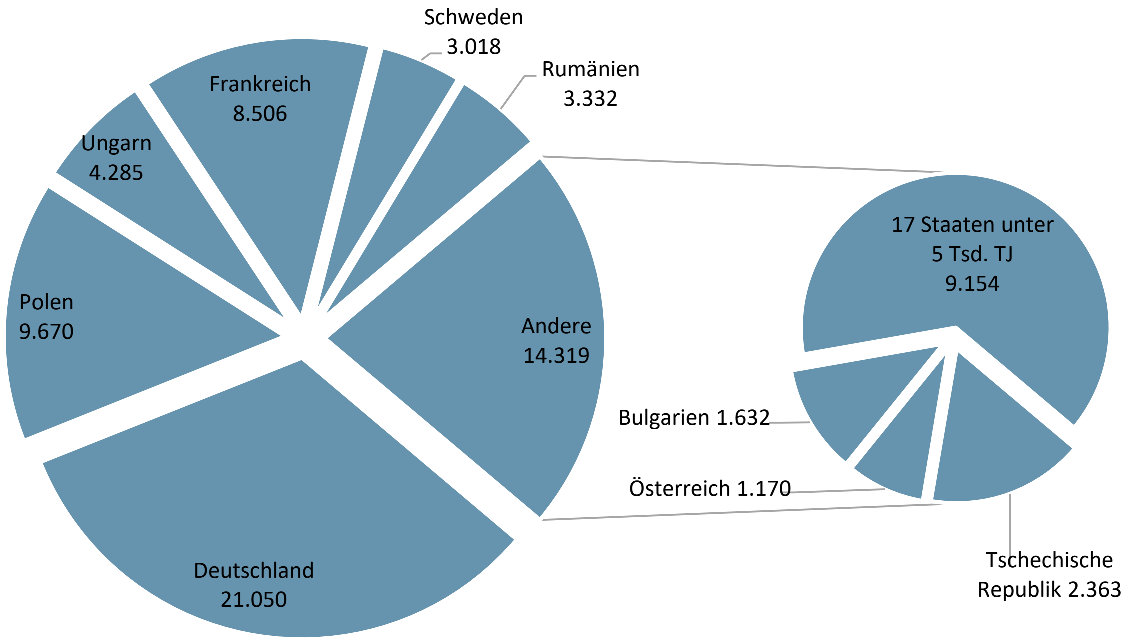


Figure 10

17 countries summarised with less than 5,000 TJ each:	
Slovakia	2,214
Finland	2,053
Netherlands	2,043
Belgium	1,294
Italy	342
Denmark	300
Spain	292
Greece	171
Latvia	149
Croatia	97
Lithuania	77
Ireland	42
Cyprus	25
Portugal	18
Slovenia	17
Estonia	15
Luxembourg	4

The largest share of biofuels whose source materials originated from non-EU European countries again came from Ukraine. Compared to the previous year, this volume fell by 25%, with a direct impact on the total volume, which in turn fell by 22%.

Source of raw material 2022 from European third countries, Biofuels [TJ]

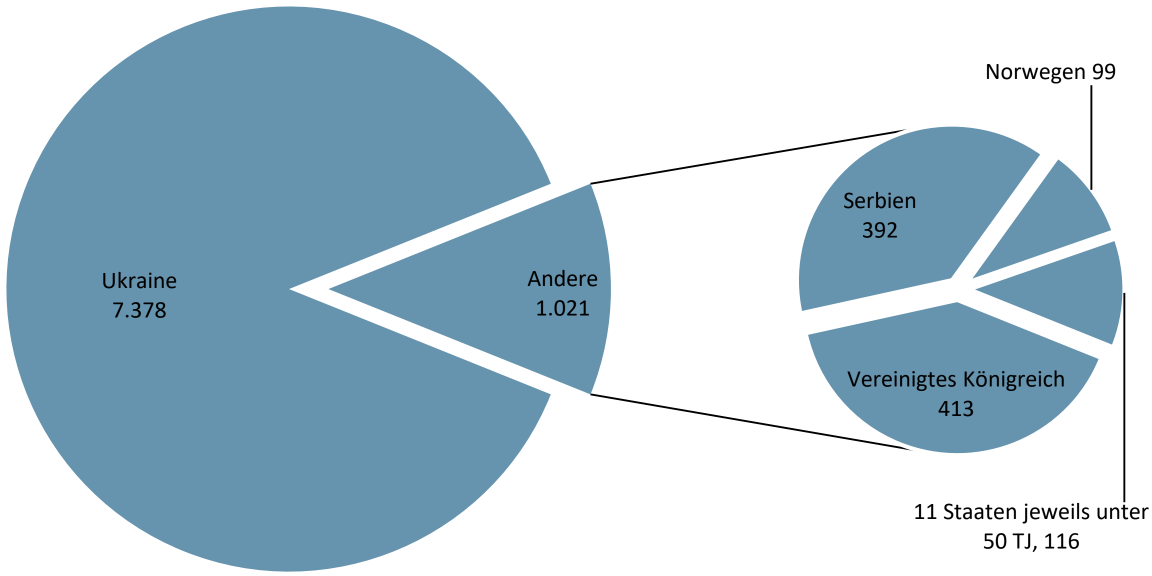


Figure 11

11 countries summarised with less than 50 TJ each:	
Belarus	43
Macedonia	31
Georgia	14
Bosnia and Herzegovina	7
Switzerland	6
Iceland	6
Montenegro	5
Moldova	4
Albania	2
Liechtenstein	1
Kosovo	1

6.2 Raw materials by source and type

The volume of biofuels whose source materials came from **Africa** rose by 34%. Only waste and residual materials were used for production.

Biofuel raw materials, source Africa, Biofuels [TJ]

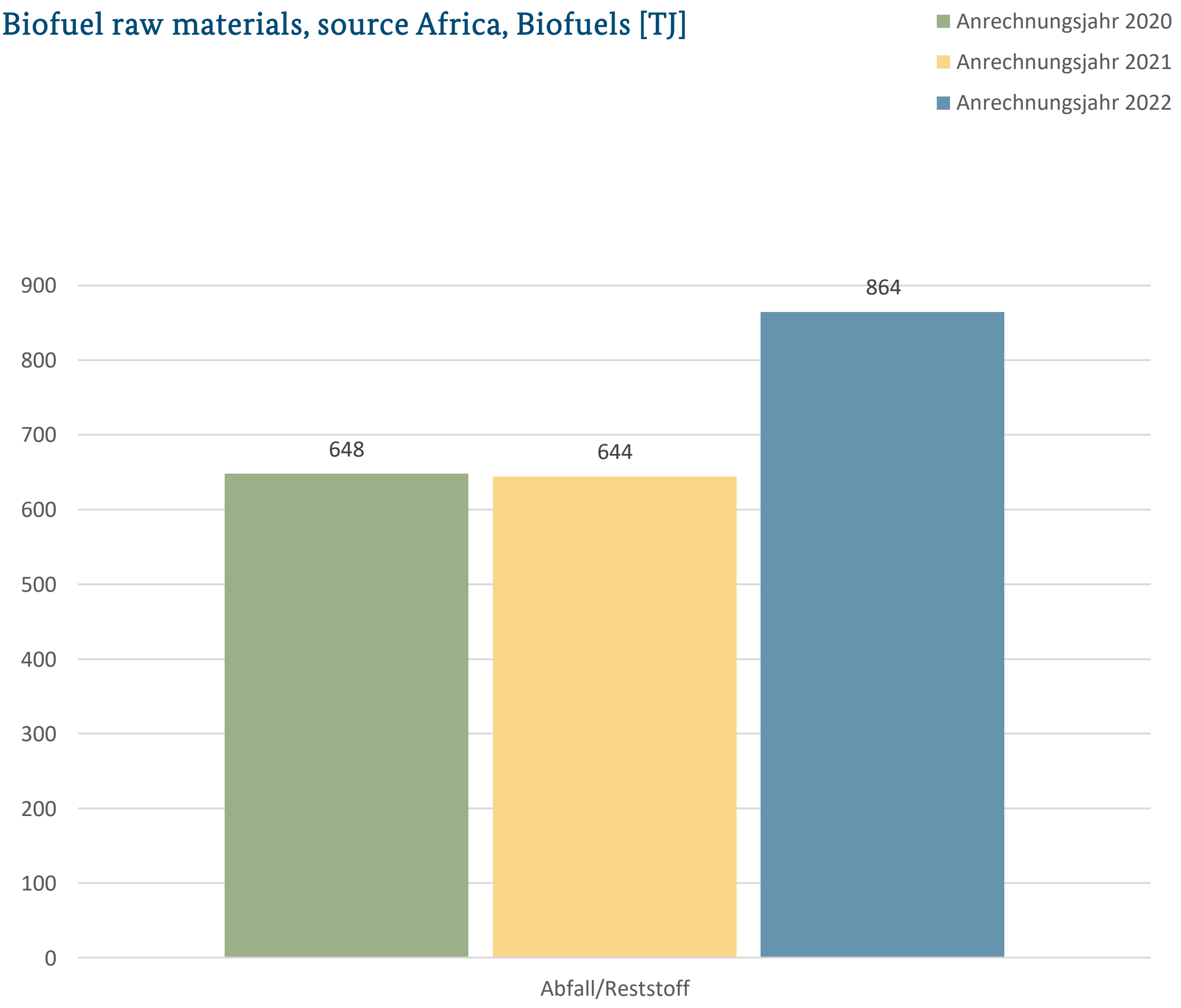


Figure 12

The **Asian** raw products used for biofuel production were predominantly waste and residues. While this volume increased by around 15 thousand TJ, the quantity produced from palm oil fell by around 26 thousand TJ.

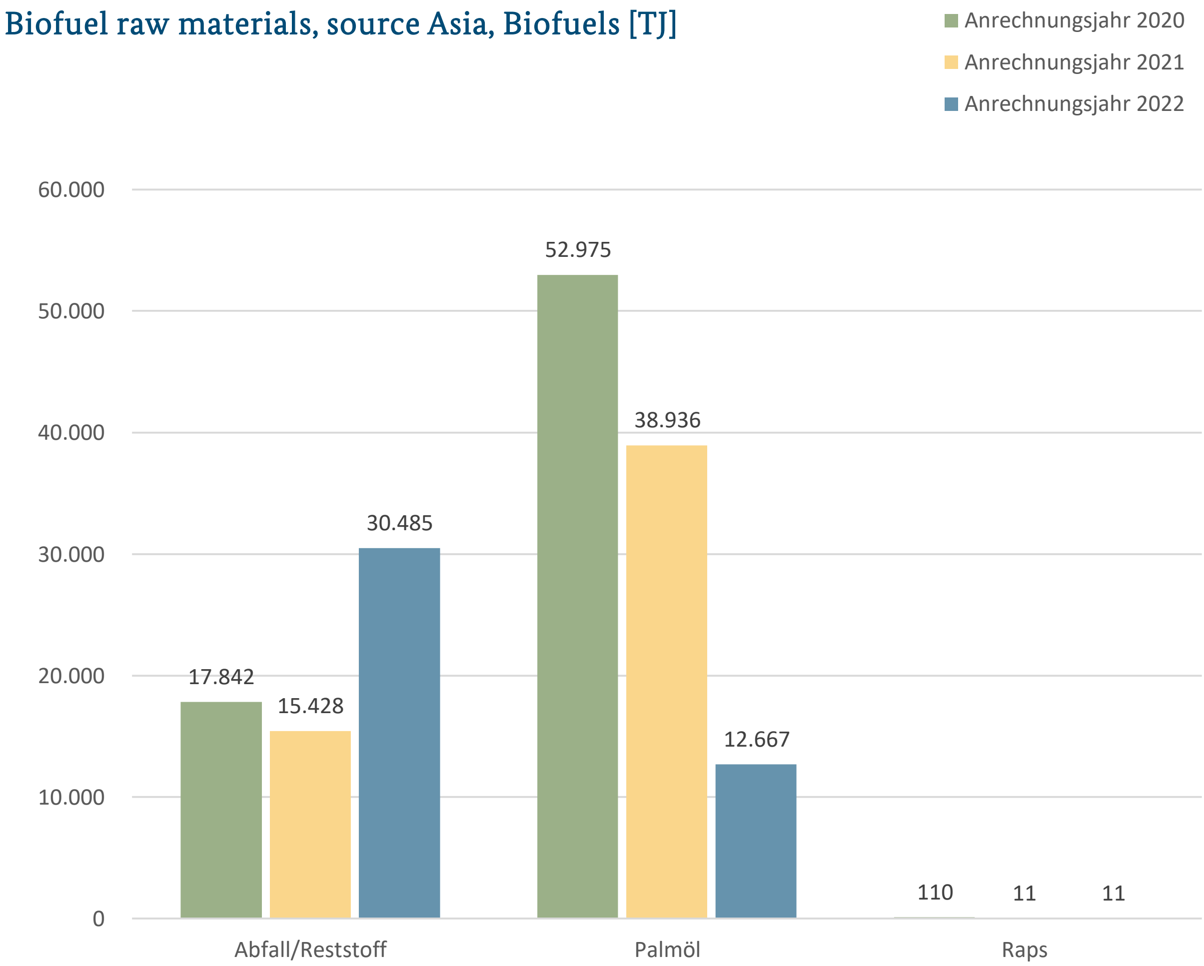


Figure 13

The requested volume of biofuels produced from **Australian** raw product decreased by 100%.

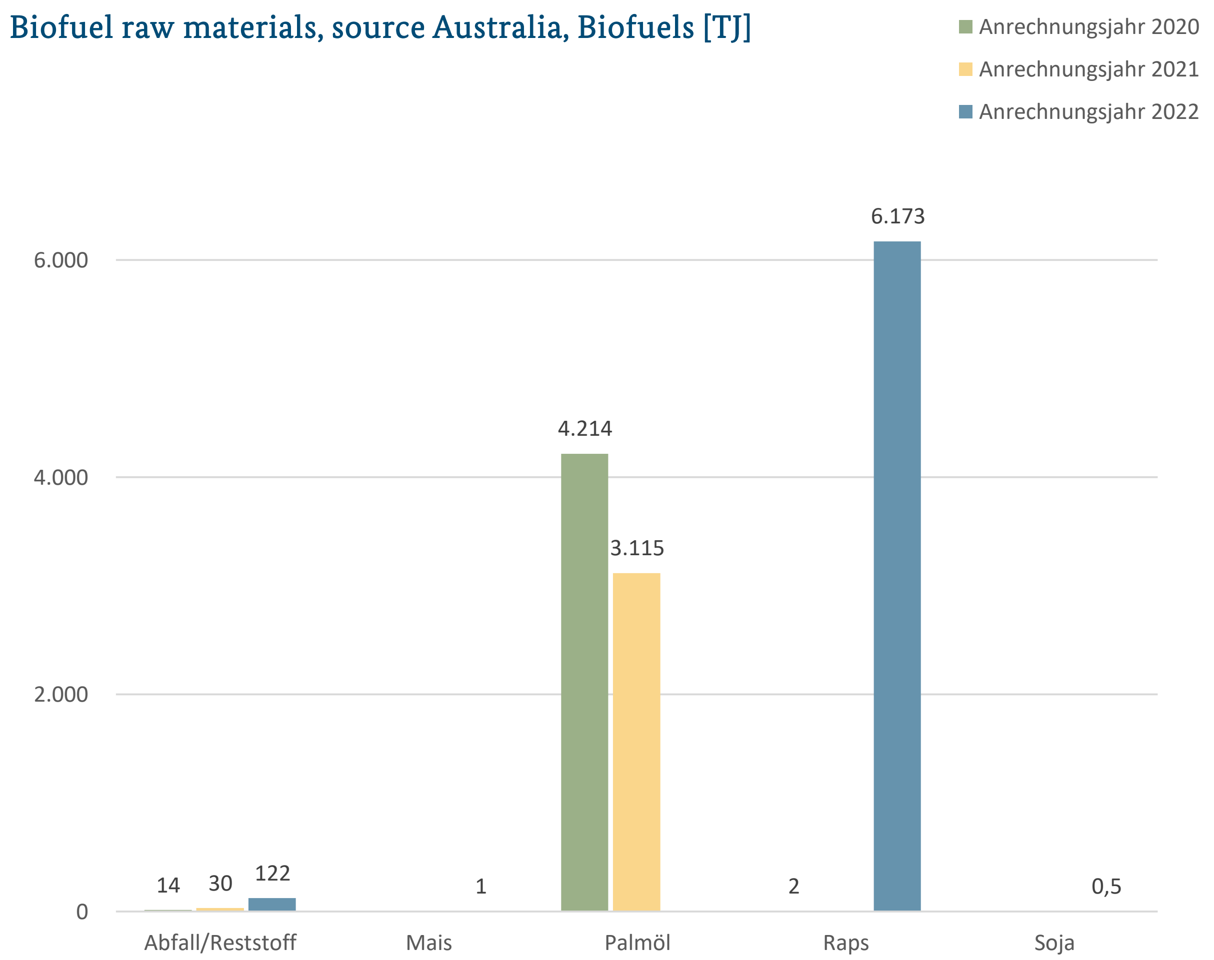


Figure 14

The most important biofuel raw products originating from **Europe** were wastes and residues, as well as rapeseed and maize, all of which recorded a decline. The proportion of waste and residual materials increased significantly by 36%.

Larger changes were seen in sunflowers (+104%), triticale (+81%) and rye (-76%) for raw materials with a lower proportion.

Biofuel raw materials, source Europe, Biofuels [TJ]

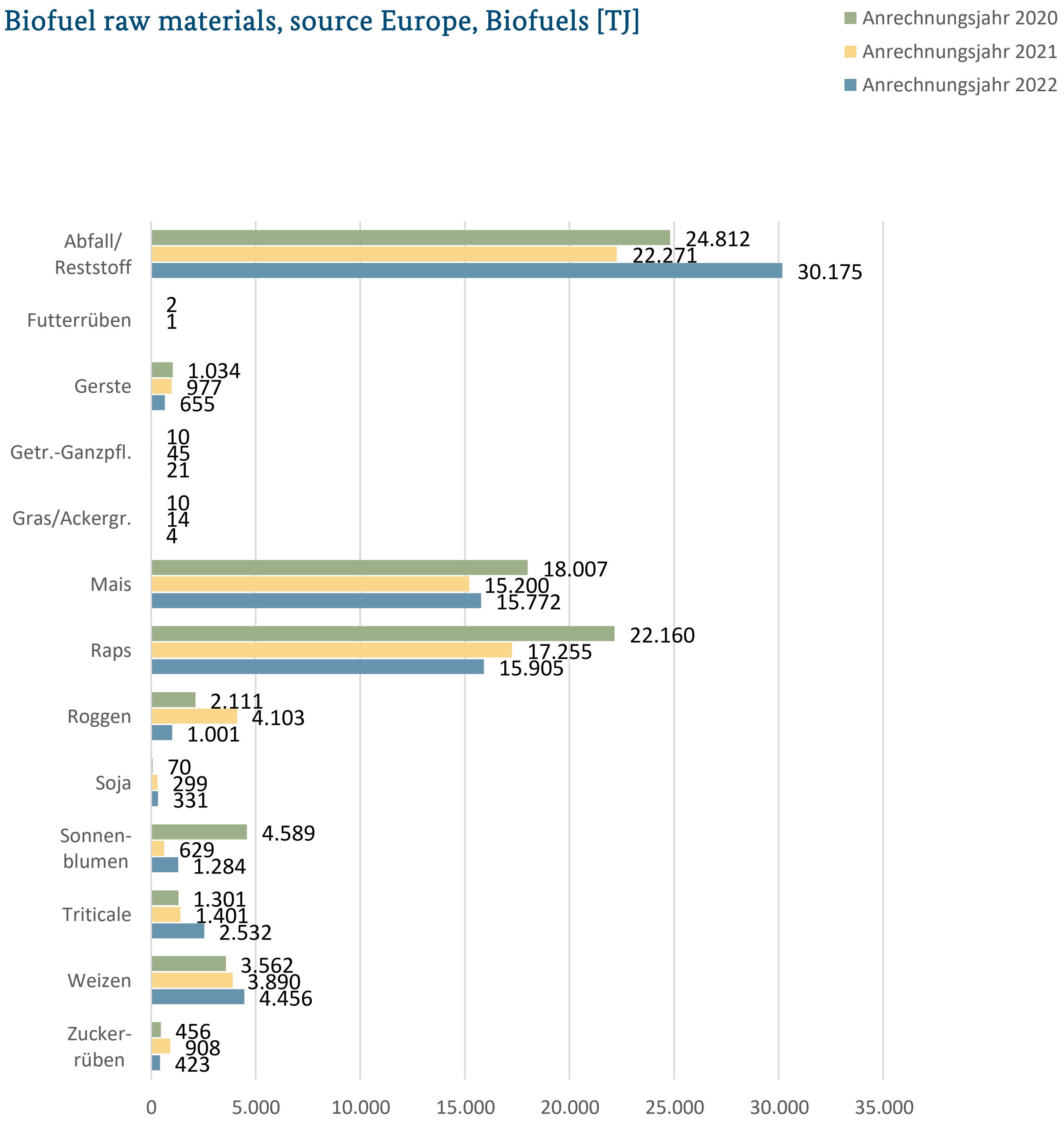


Figure 15

Biofuels whose raw materials originated in **Germany** recorded a decline of 14%. They were mainly produced from waste and residues (+24% compared to the previous year) and from rapeseed (-46% compared to the previous year).

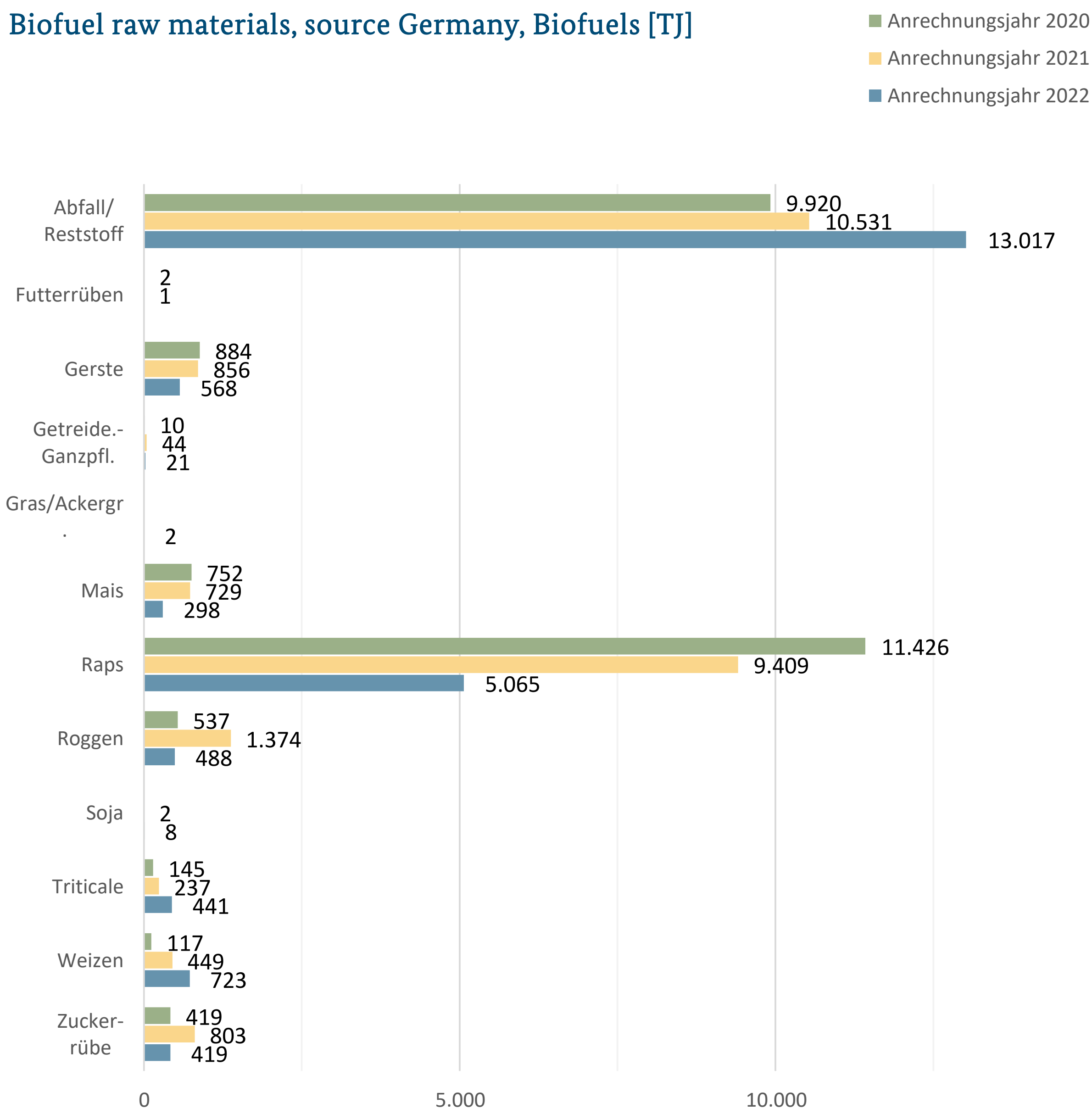


Figure 16

Raw product originating from **Central America** decreased by 29% compared to the previous year. The proportion of sugar cane increased by 205%, replacing palm oil as the most important raw material to date.

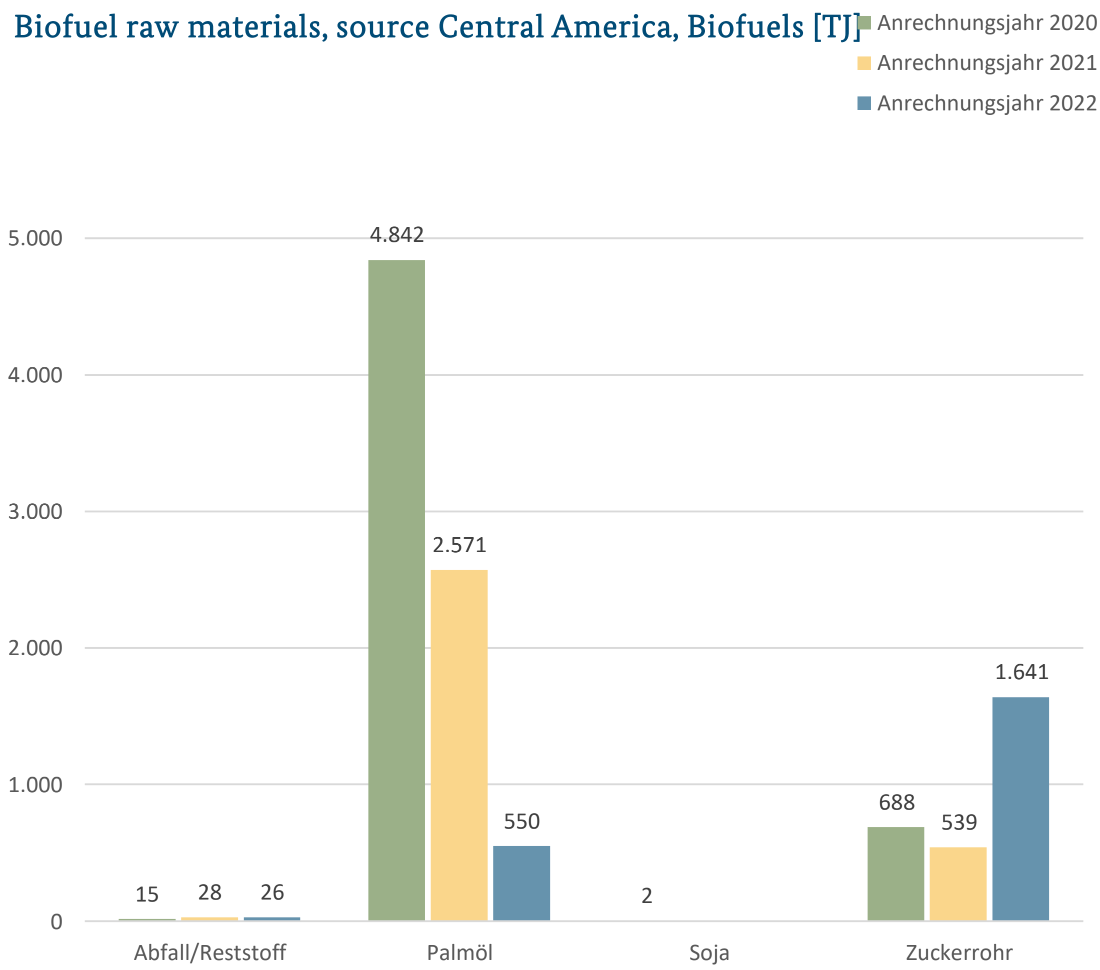


Figure 17

The volume of biofuels whose source materials came from **North America** rose by 39%. The most important source materials were waste and residual materials, the proportion of which increased by 59% compared to the previous year. The proportion from rapeseed, previously the most important raw material, fell by 88%.

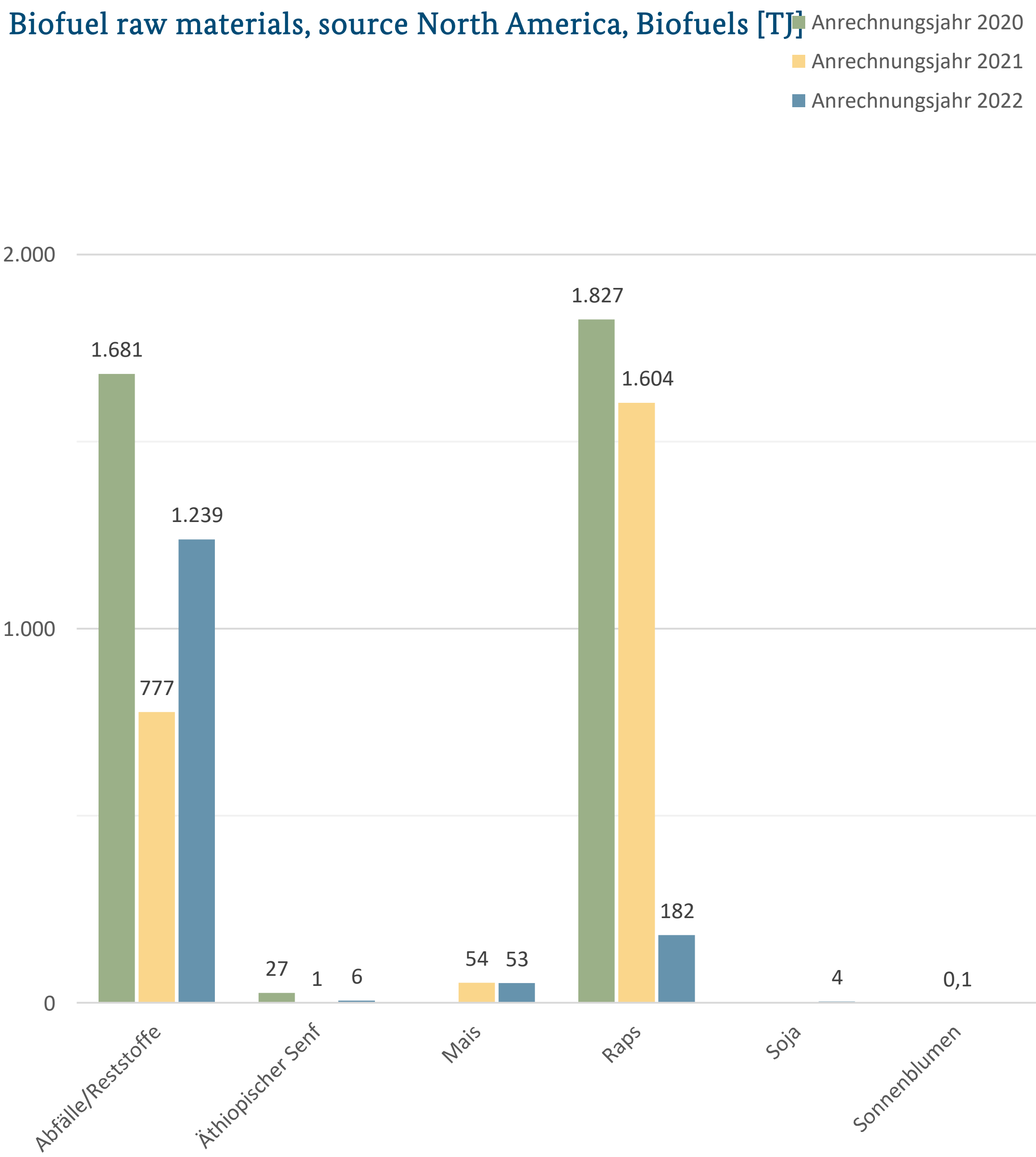


Figure 18

The amount of biofuels produced from **South American** raw product increased by 69% compared to the previous year.

The most important raw material was soya, which increased by 93%.

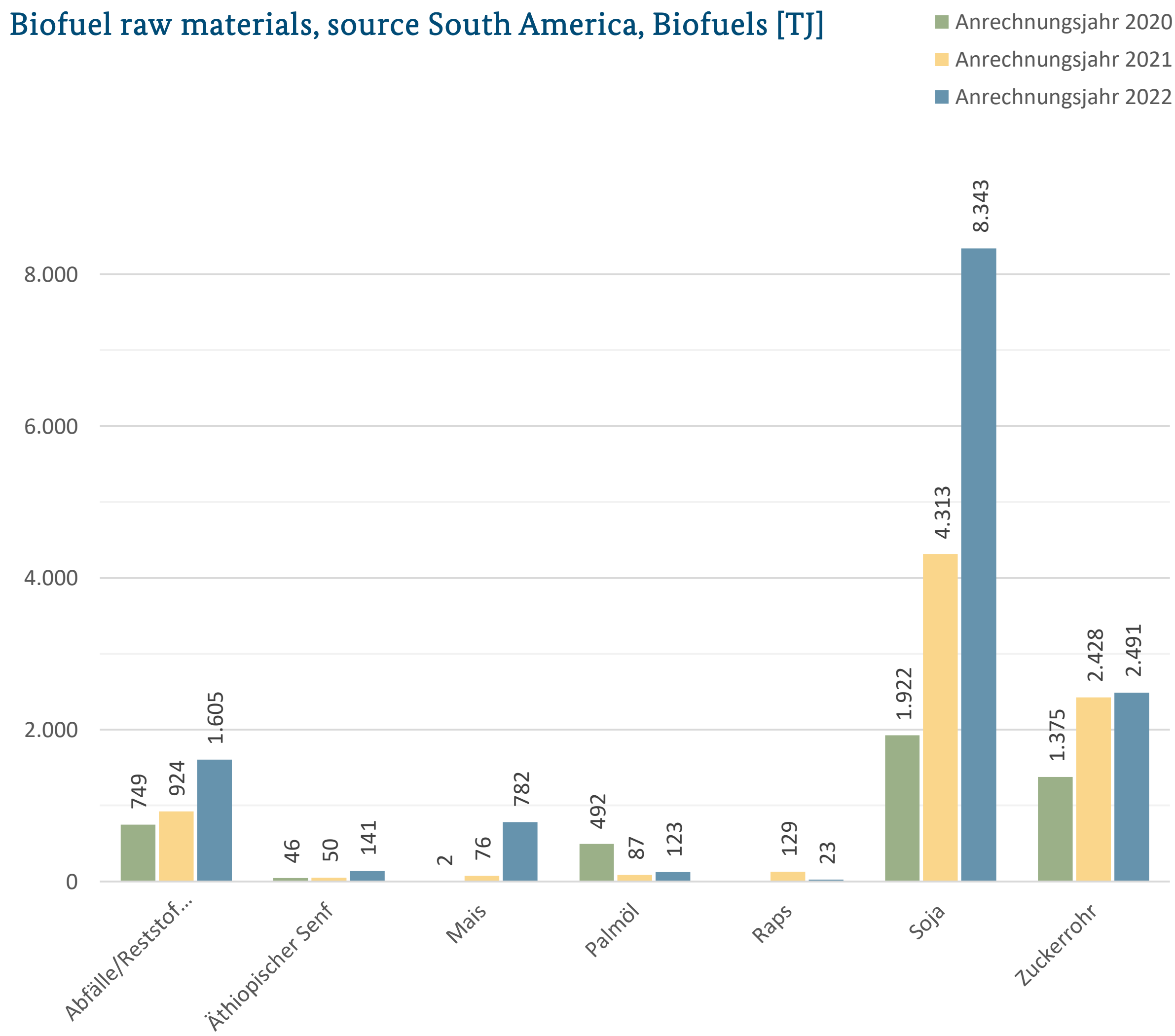


Figure 19

6.3 Biofuel types

For 2022, a total of 140,090 terajoules of biofuels were declared for quota crediting. Biodiesel (FAME) accounted for the largest share at 59%. This is followed by bioethanol (22%), HVO (15%) and biomethane (3%).

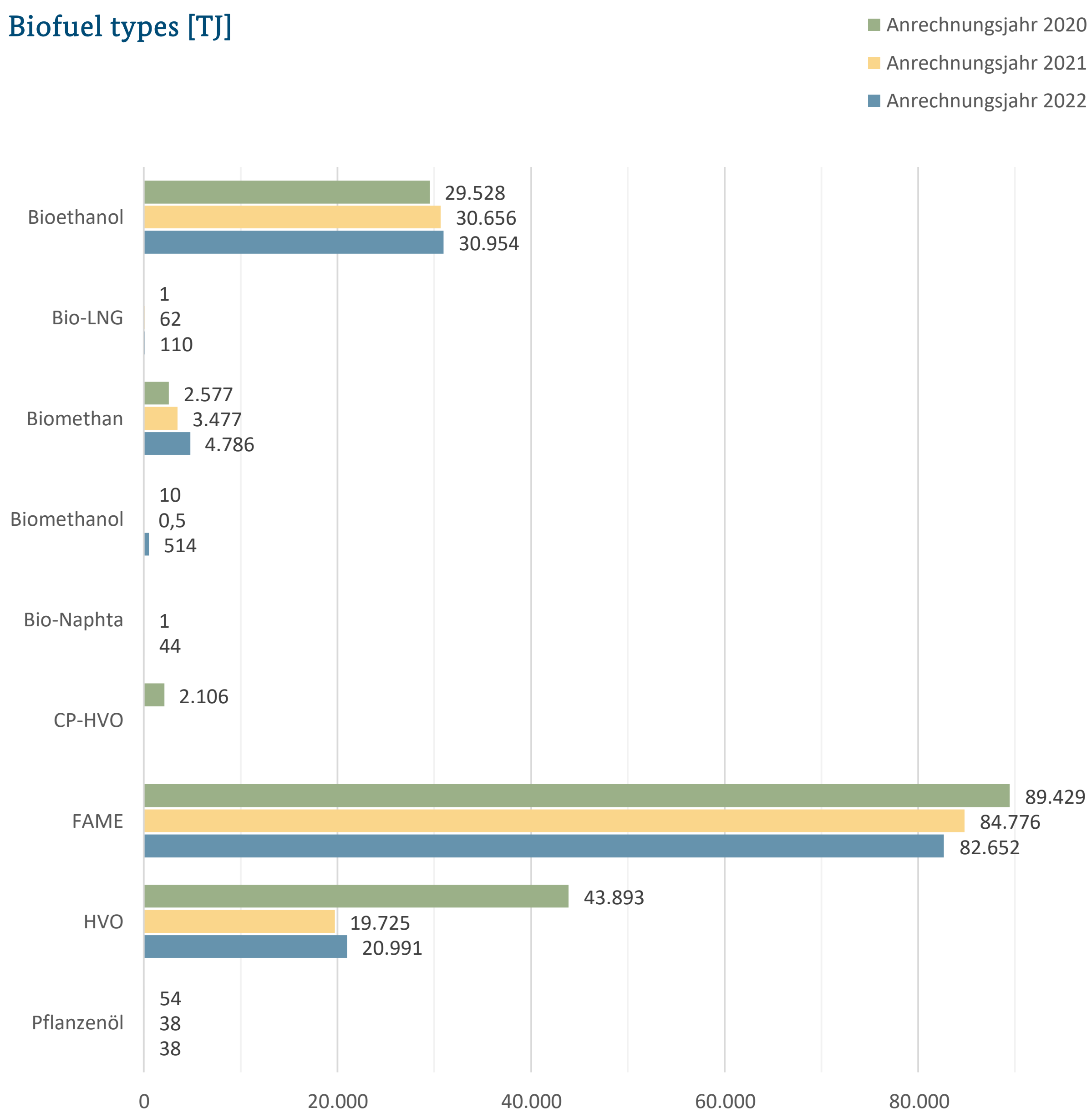


Figure 20

The following figure illustrates the distribution of biofuel types in 2022.

Biofuel types 2022

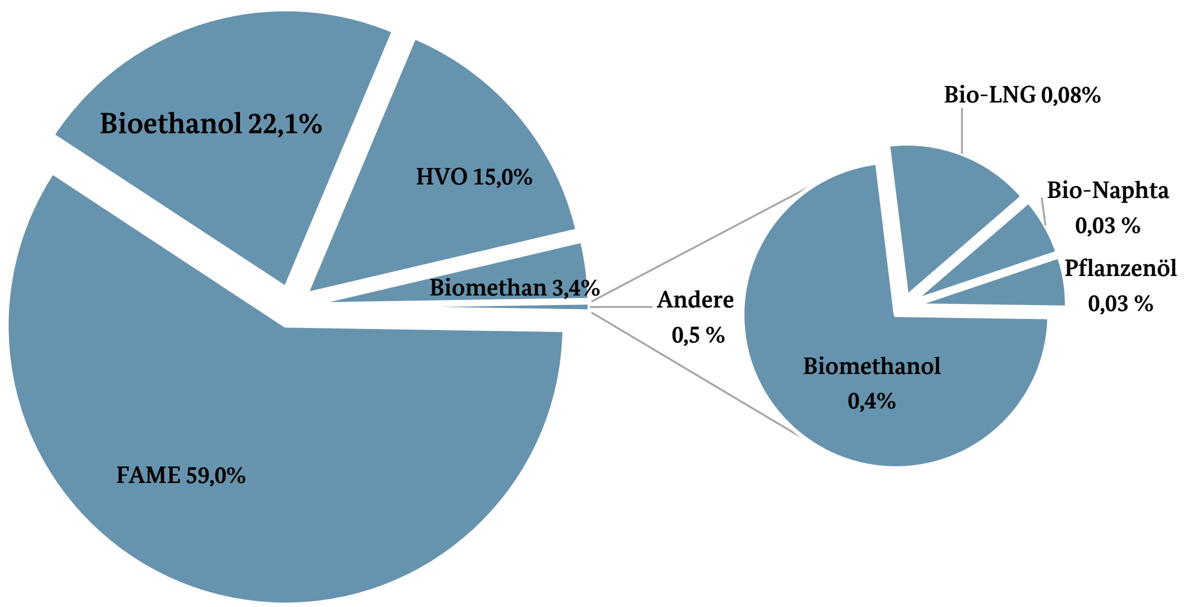


Figure 21

The total volume of **bioethanol** remained almost the same as in the previous year. More than half of bioethanol is produced from maize.

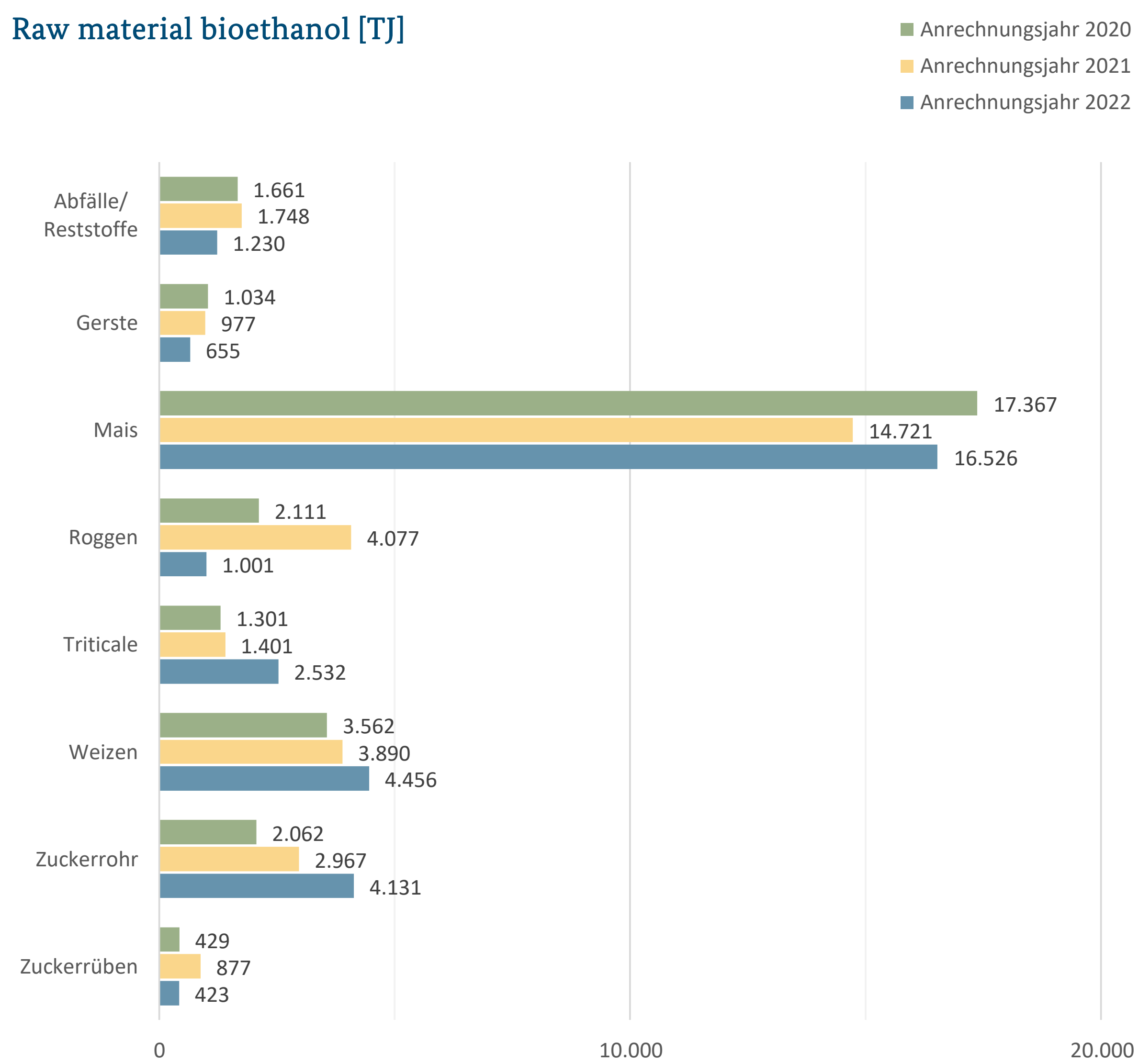


Figure 22

The most important raw material from **Germany** for the production of **bioethanol** was wheat.

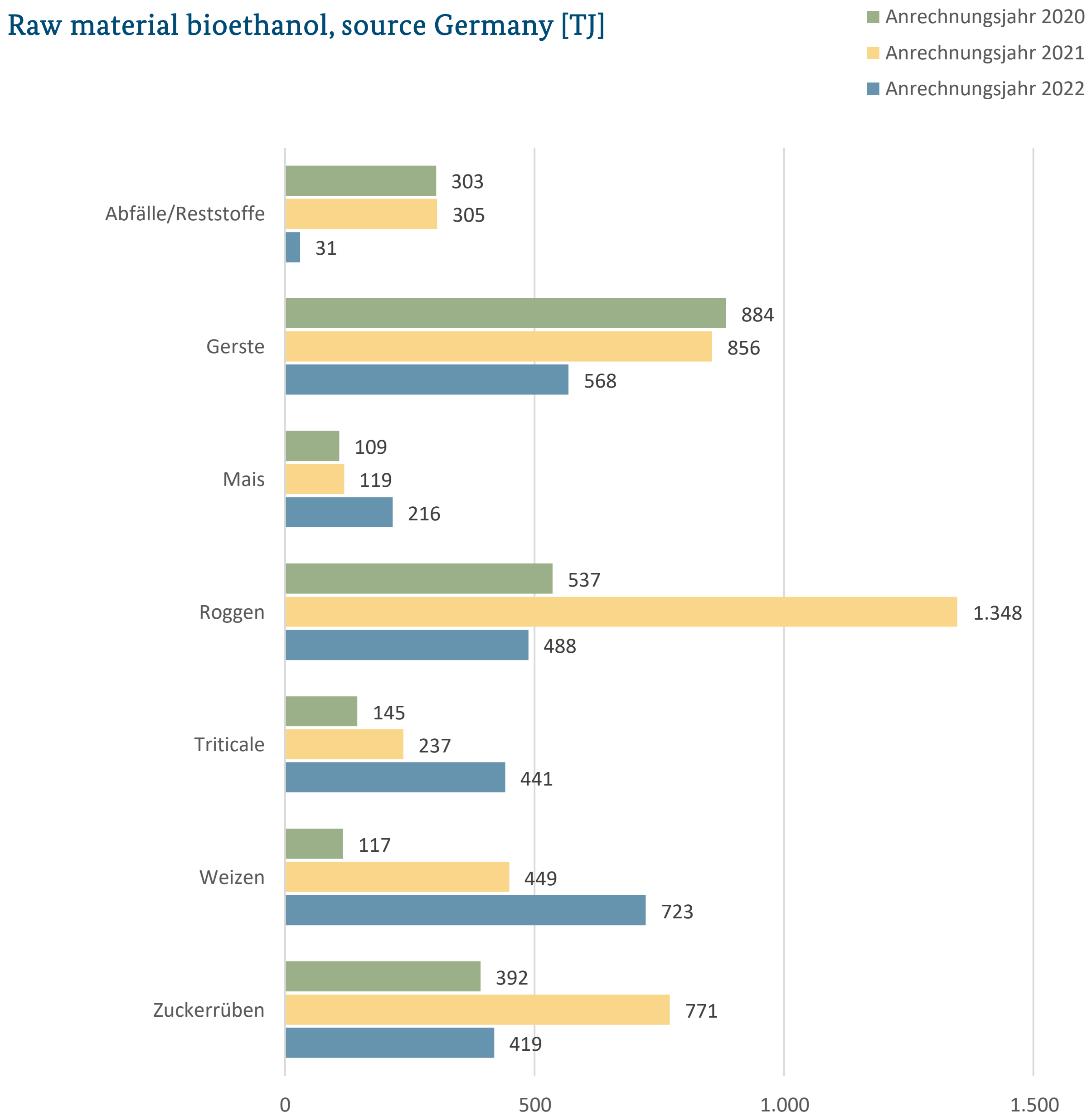


Figure 23

The amount of **FAME (biodiesel)** declared for crediting decreased by 3% compared to the previous year. The largest share was accounted for by waste and residues at 50% and rapeseed at 27%. The proportion from palm oil fell by 68%.

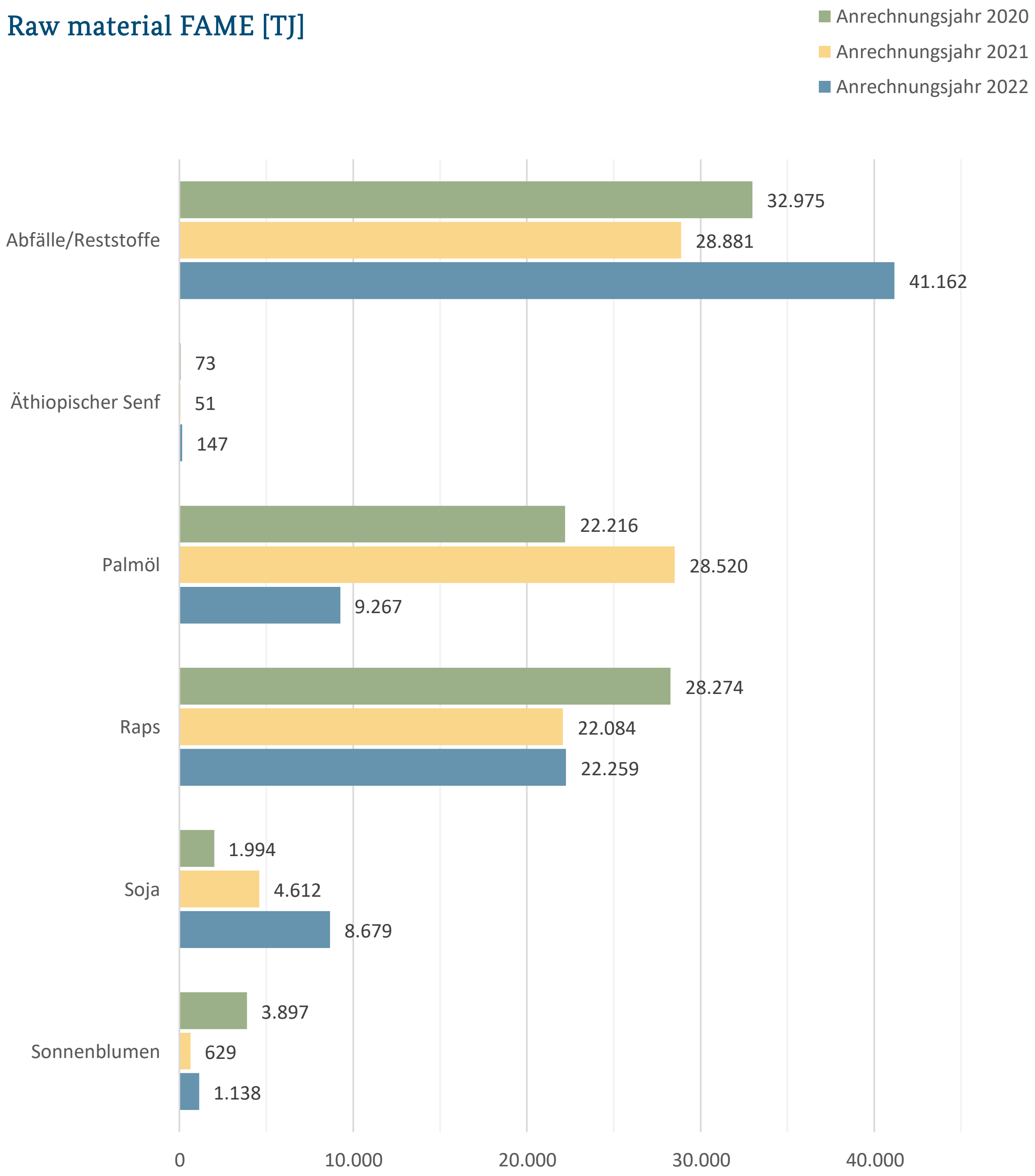


Figure 24

The most important raw product for biodiesel production originating from **Germany** was waste and residues with a share of just under 63%, followed by rapeseed with 37%.

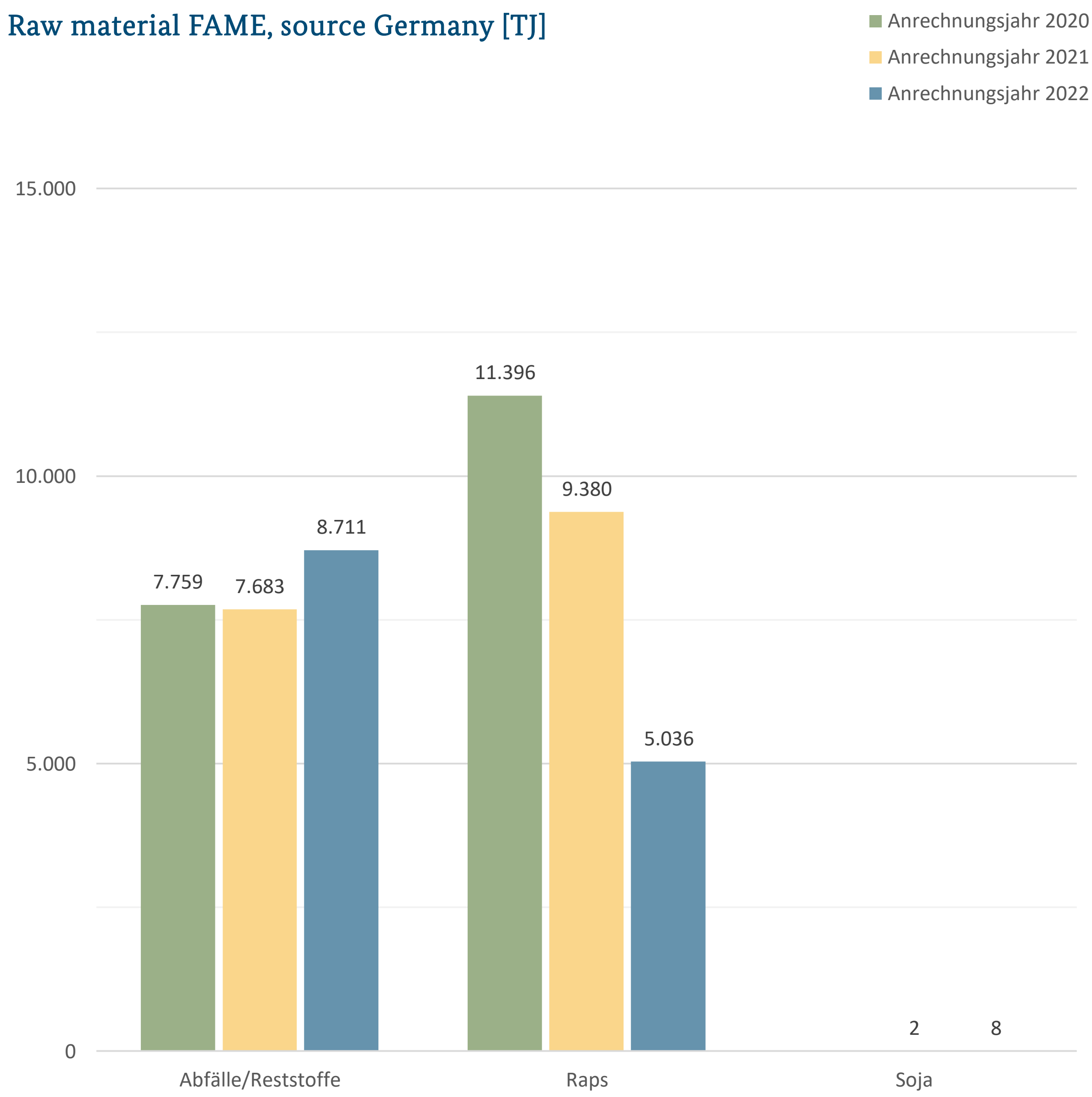


Figure 25

The total volume of **hydrogenated vegetable oils (HVO)** increased by 6% compared to the previous year. This was mainly produced from waste and residual materials, the proportion of which has more than doubled.

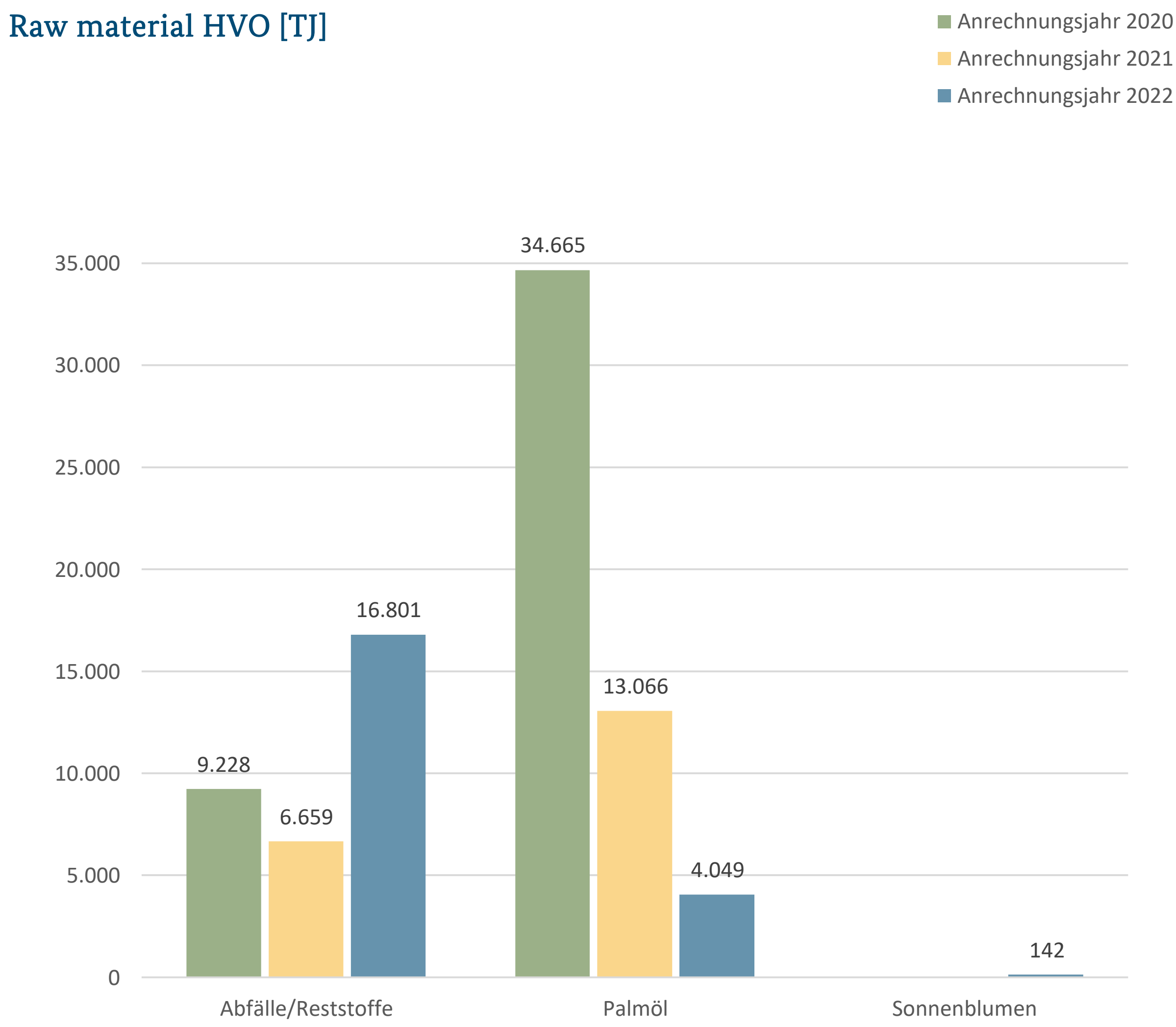


Figure 26

Biomethane was largely produced from waste and residual materials. The total quantity for which crediting was applied for increased again (+38%).

91% of the raw materials used in production came from Germany. The remaining 9% came from Poland, the Czech Republic and the Netherlands. The biomethane was produced exclusively by companies based in Germany.

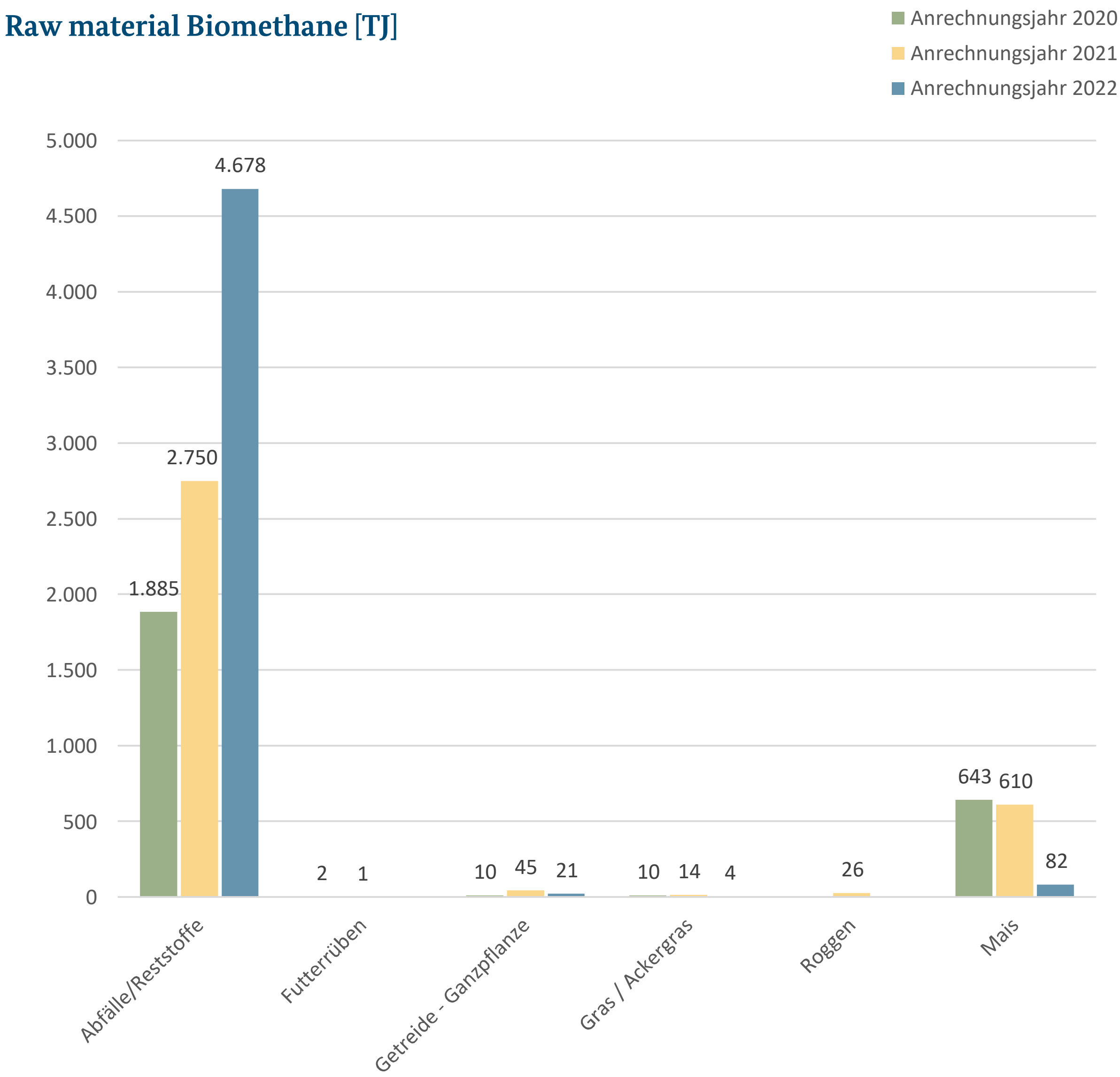


Figure 27

The total volume of **vegetable oils** was at a similar level to the previous year. The raw materials were rapeseed (89%), sunflower (9%) and palm oil (2%).

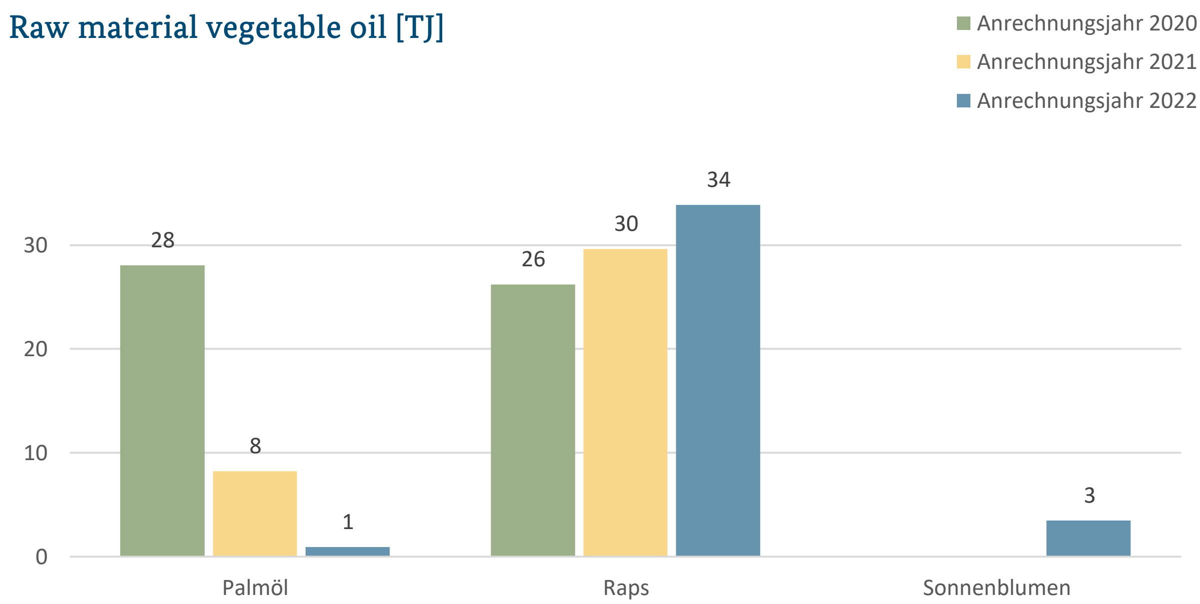


Figure 28

The volume of **bio-LNG** (liquefied biomethane) used rose significantly once again (+77%), but only plays a minor role in relation to the total volume of quota crediting registered in 2022.[3]

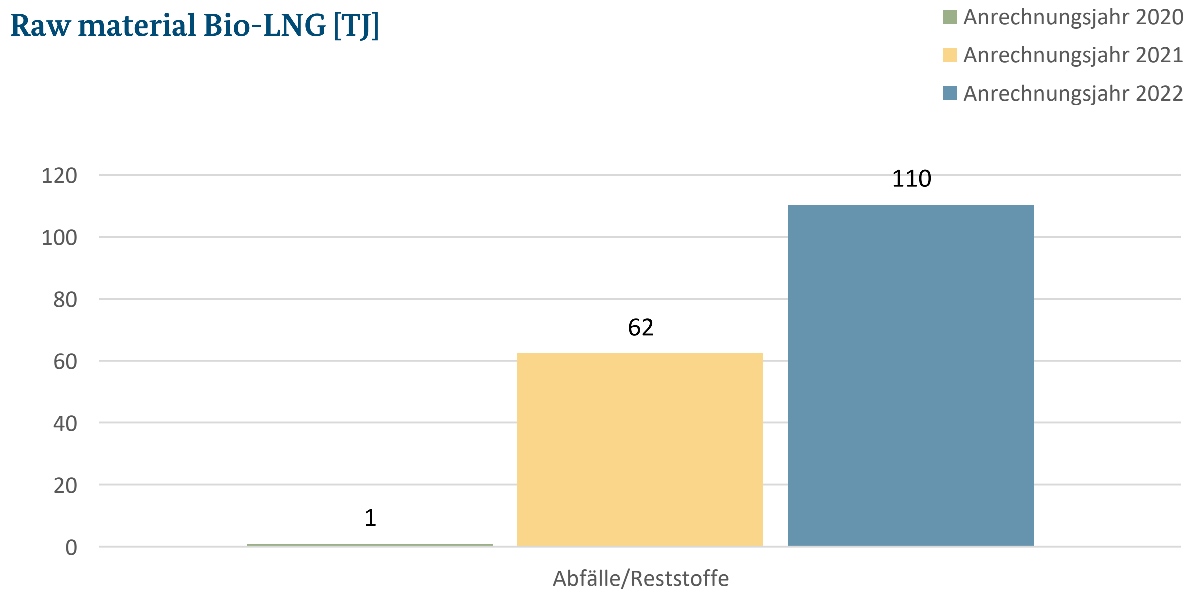


Figure 29

[3] Value from evaluation report for the year 2020 was corrected

6.4 Greenhouse gas emissions and savings

Reducing greenhouse gas emissions is one of the goals of the Renewable Energy Directive. The information on emissions must be included on the sustainability certificates in CO_2 equivalent for the product in accordance with Section 14 BioSt-NachV or Section 12 Biokraft-NachV.

The emissions calculation takes into account the total emissions generated during the manufacturing process for the final product. These are the greenhouse gases carbon dioxide (CO_2), nitrous oxide (N_2O) and methane (CH_4) as specified in the Renewable Energy Directive, expressed in CO_2 equivalent per unit of energy. Emissions accounting is carried out by the certified economic operators along the value chain in accordance with the specified methodology[4].

The following figures show the emissions of the biofuels for which crediting to the biofuel quota was requested.

In calculating the emission savings, the emissions generated during the entire biofuel production process were compared with the individual fossil fuel equivalents in accordance with the 38th BImSchV.

Table 4: Fossil fuel equivalents

Fuel type	Fossil fuel equivalent according to the 38th BImSchV [g CO_2eq/MJ]
Bioethanol	93.3
Bio-LNG	94.1
Biomethane	94.1
Biomethanol	93.3
Bionaphtha	93.3
Btl-FTD	95.1
CP-HVO	95.1
FAME	95.1
HVO	95.1
Vegetable oil	95.1

The emission savings presented below are based on the comparison of pure combustible biofuels and pure combustible fossil fuels. In order to be considered a sustainable biofuel, since the quota year 2018 a saving compared to a fossil fuel of at least 50 percent must be demonstrated. In order to calculate the total savings from blended fuels in Germany, the sum of emissions from biogenic and fossil fuels must be taken as a basis.

[4] See page 8, footnote 1

The diagram below shows the emissions that would have been produced if only fossil fuels had been used instead of the amount of biofuel. This means that the use of biofuels saved around 11.6 million tonnes of CO_2 equivalent in 2022.

Emissions and savings of combustible biofuels [tCO_2eq/TJ]

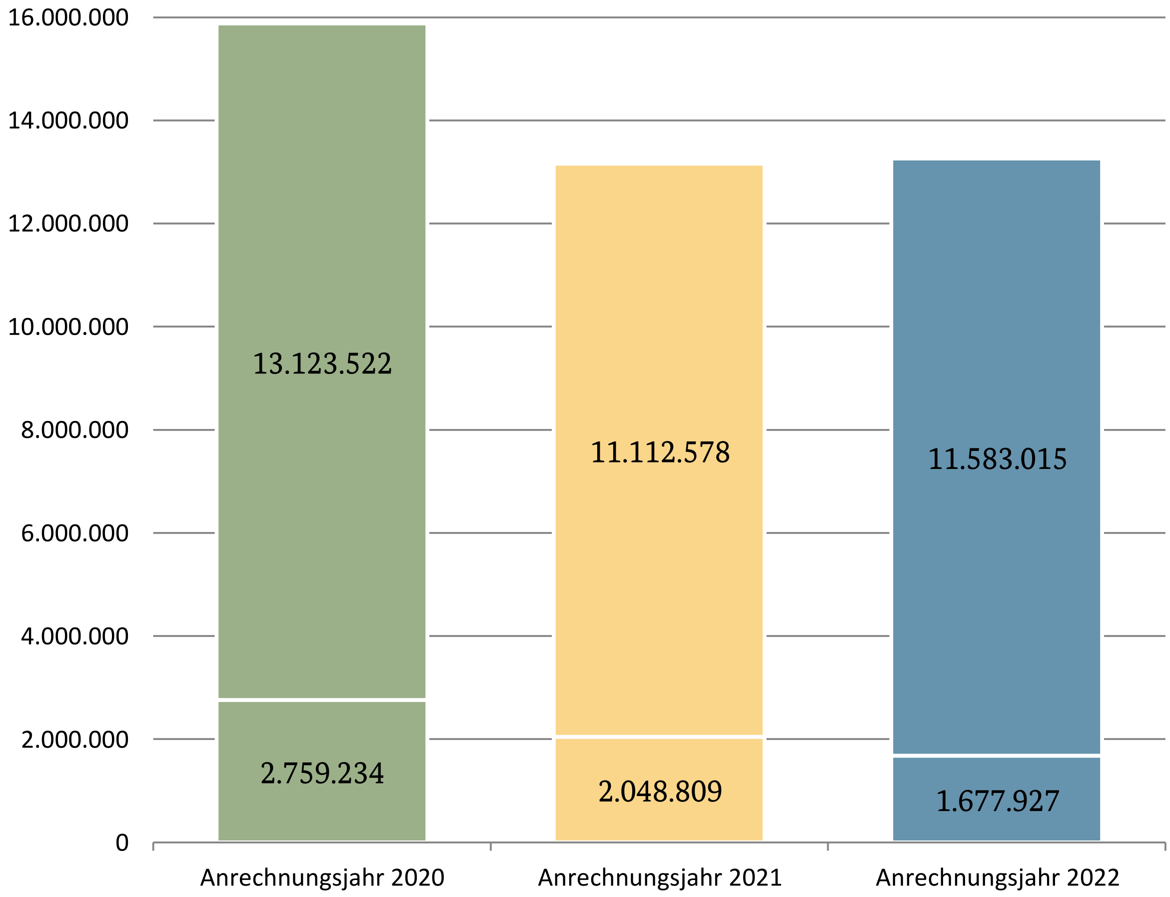


Figure 30

The biofuel placed recognised in the quota crediting emitted an average of 11.98 tCO_2eq per terajoule in the reporting year, which is less than in previous years.

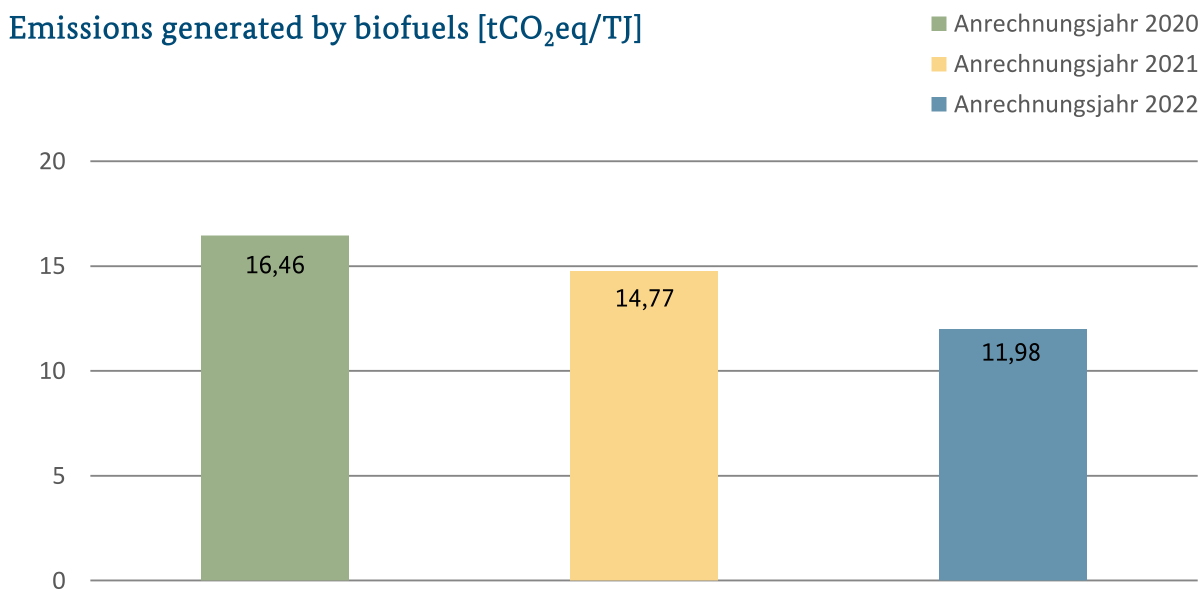


Figure 31

The average total emission saving of biofuels compared to fossil fuels increased by 2.9 percentage points.

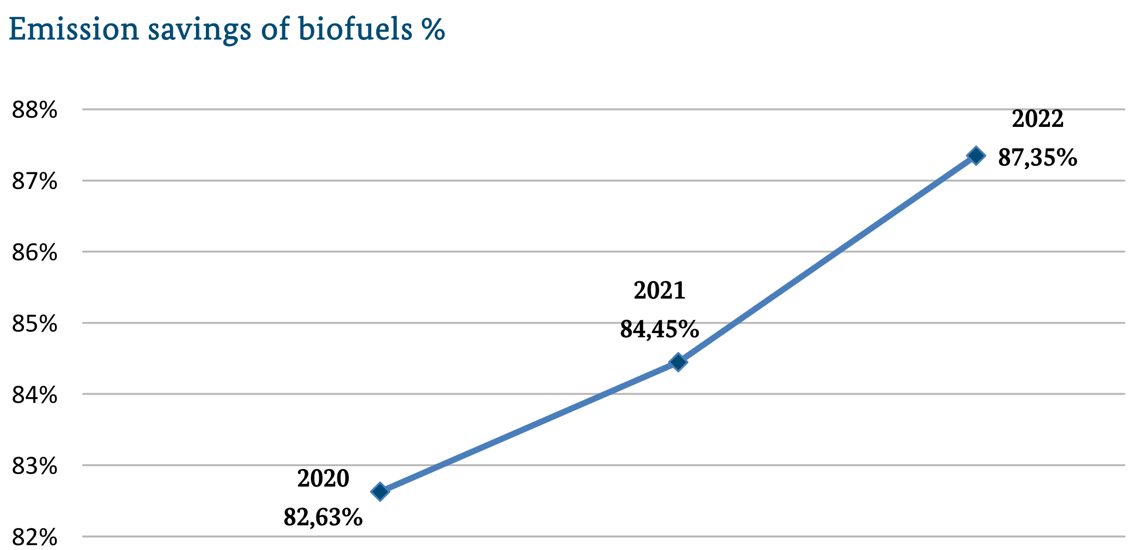


Figure 32

Biomethanol accounted for the highest average emissions of the biofuel types in the reporting year. The lowest value was achieved by biomethane.

Biofuel emissions by fuel type [tCO_2eq/TJ]

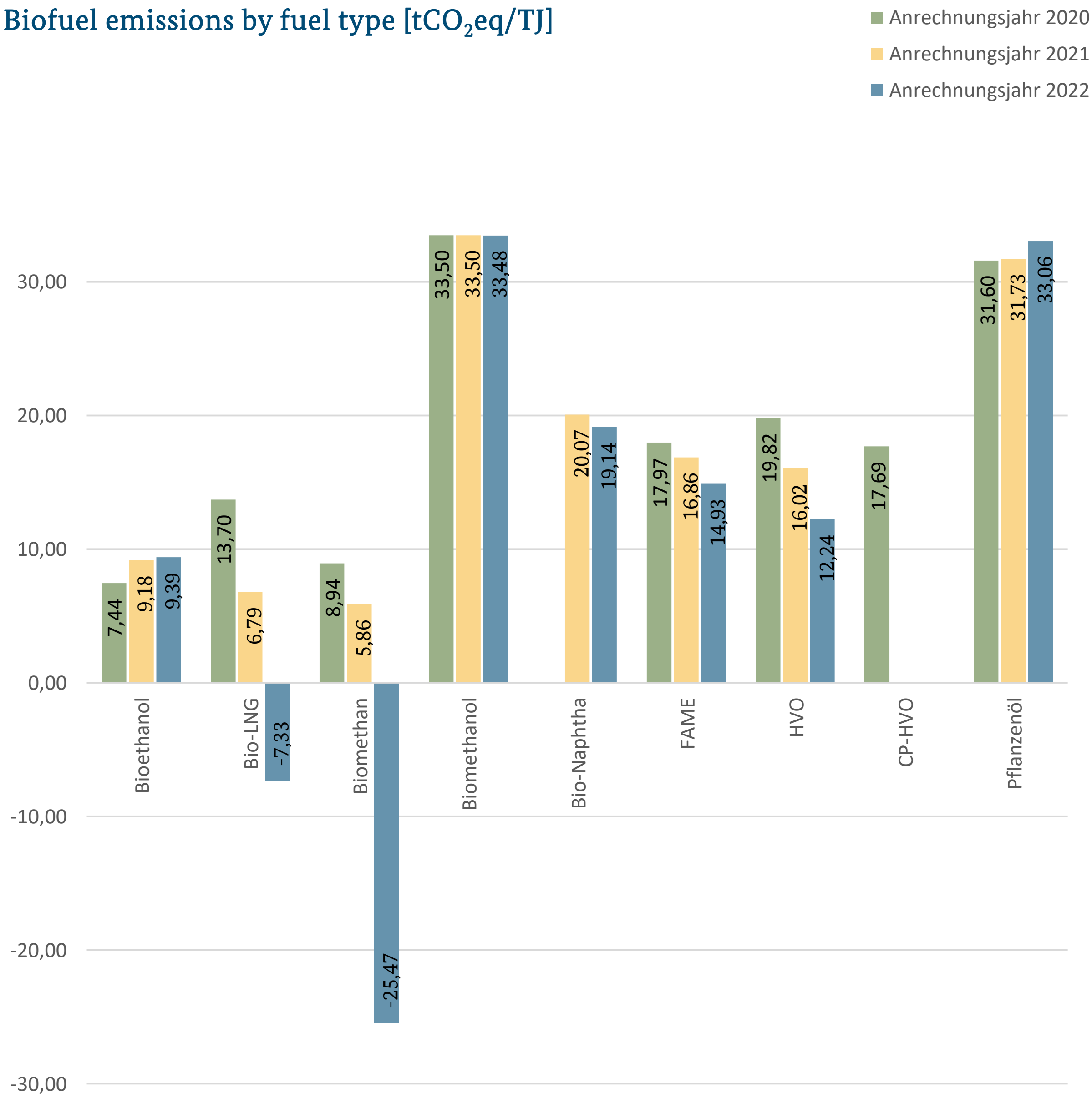


Figure 33

The highest savings of petrol-replacing biofuels and gas were achieved with bio-methane.

Emission savings of biofuels replacing petrol and gas [%]

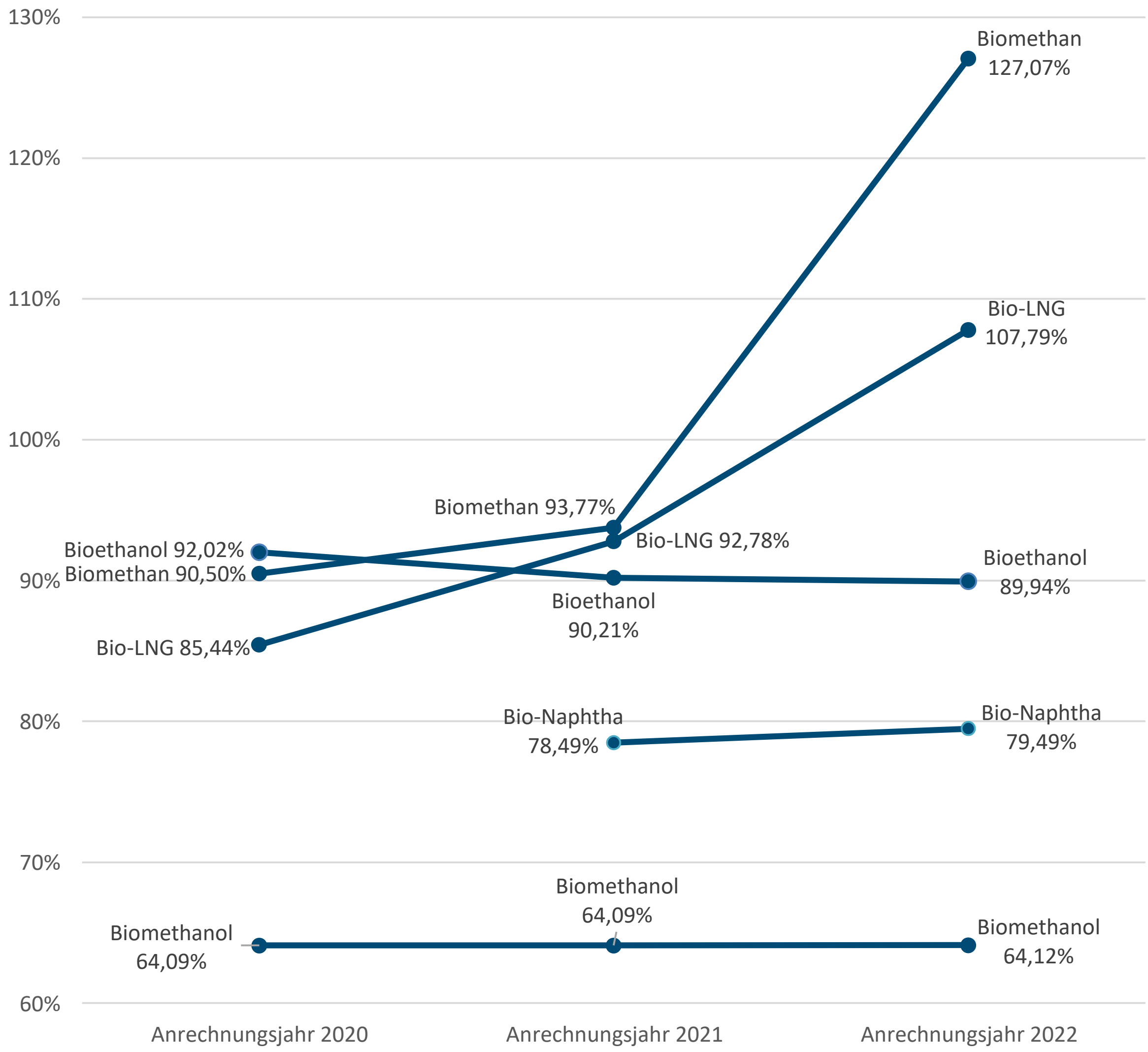


Figure 34

The highest saving of biofuels replacing diesel fuel was achieved in the quota year 2022 HVO.

Emission savings of biofuels replacing diesel [%]

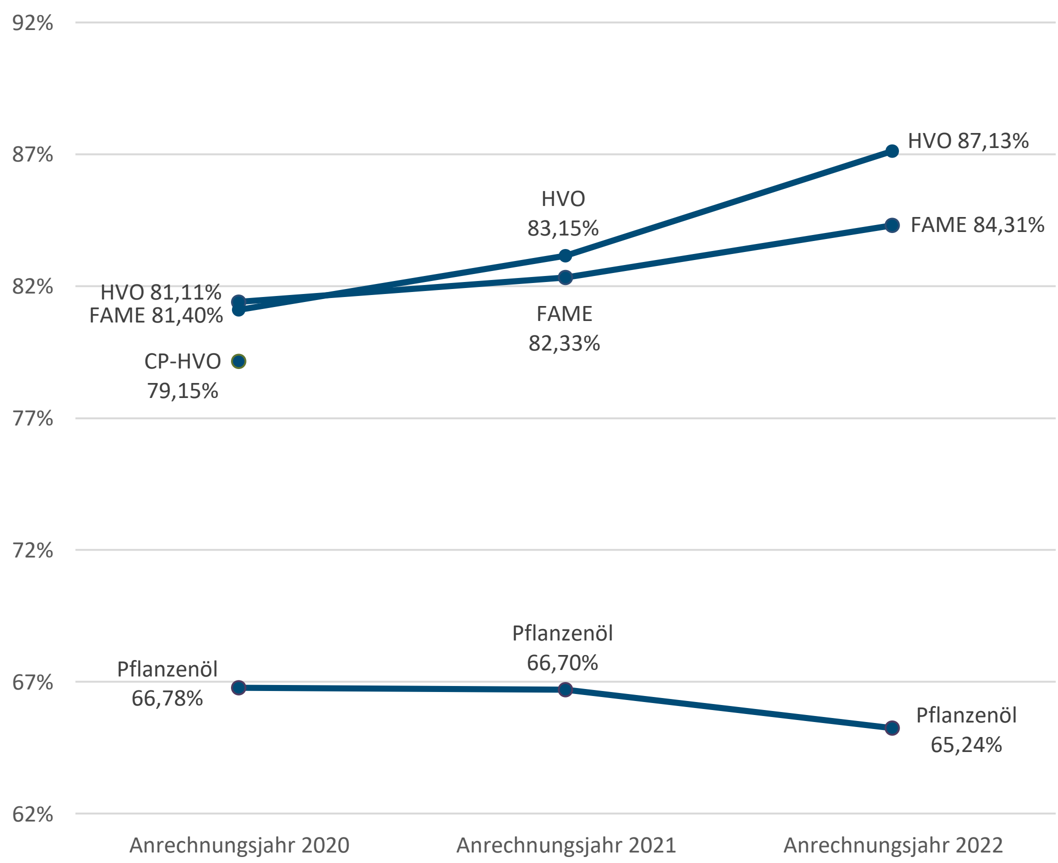


Figure 35

Bioethanol produced from wheat had the highest savings of 92.89%.

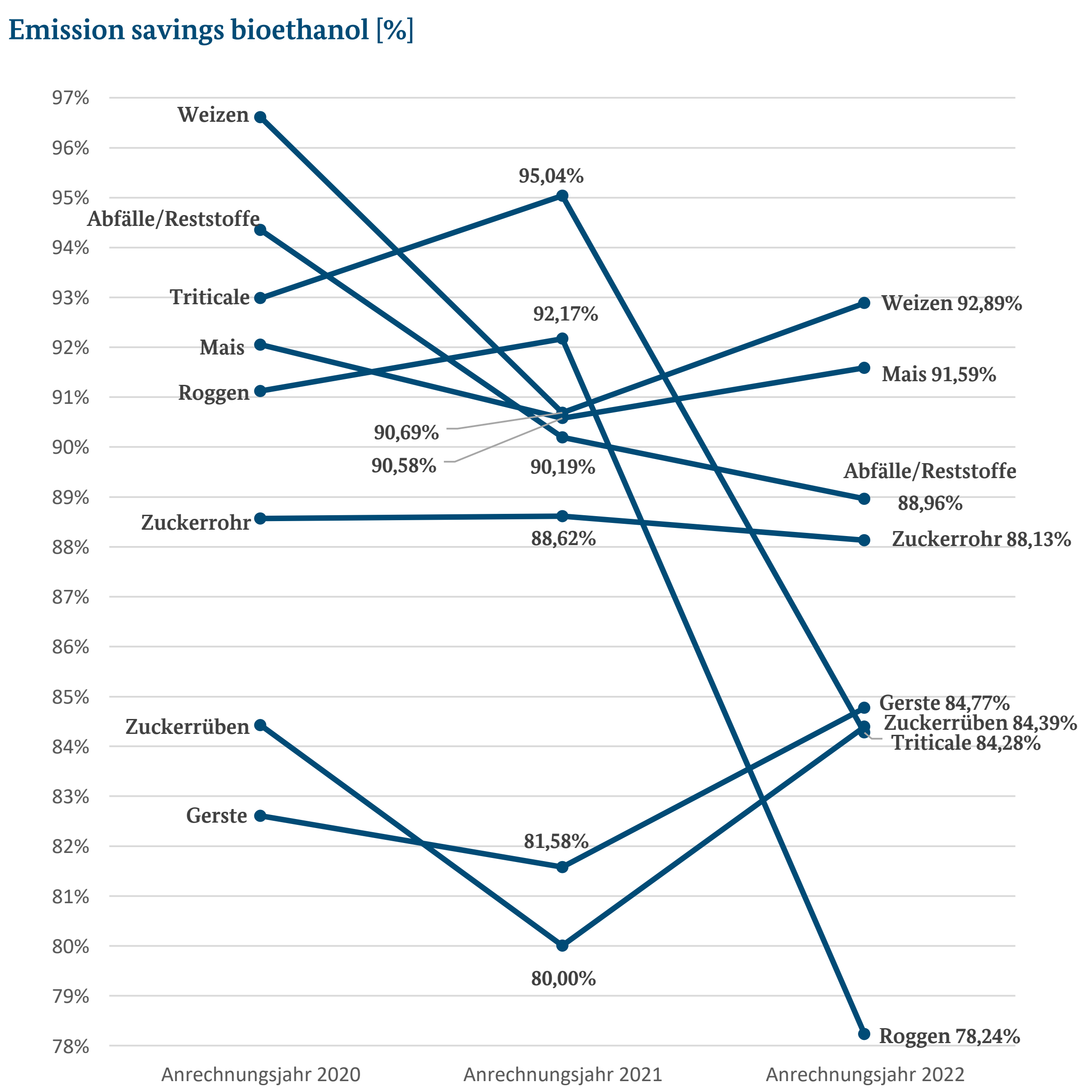


Figure 36

Biodiesel/FAME from Ethiopian mustard again achieved by far the highest emission savings of all raw product in the reporting year,

Emission savings FAME [%]

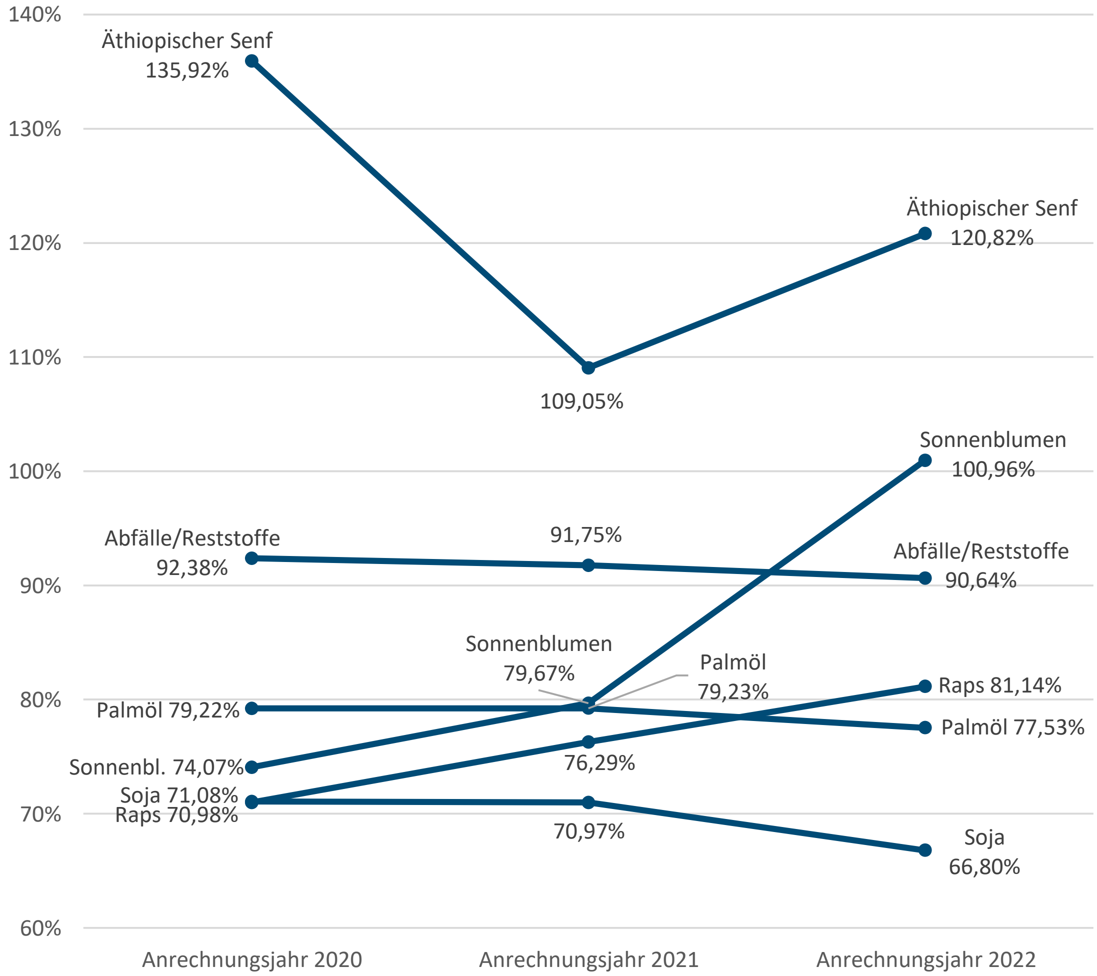


Figure 37

6.5 Emission savings of individual biofuel types according to greenhouse gas reduction levels

This section contains tables of emission savings for selected fuel types, raw product and growing regions. The figures were produced according to the percentage energy share within GHG reduction levels.

*Table 5: Emission savings bioethanol by raw material and GHG reduction level - shares in %**

GHG Savings [%]	Waste/Residues		Barley		Maize		Rye		Triticale		Wheat		Sugar cane		Sugar beet		Total	
	Year 2021 1,748 TJ	Year 2022 1,230 TJ	Year 2021 977 TJ	Year 2022 655 TJ	Year 2021 14,721 TJ	Year 2022 16,526 TJ	Year 2021 4,077 TJ	Year 2022 1,001 TJ	Year 2021 1,401 TJ	Year 2022 2,532 TJ	Year 2021 3,890 TJ	Year 2022 4,456 TJ	Year 2021 2,967 TJ	Year 2022 4,131 TJ	Year 2021 877 TJ	Year 2022 423 TJ	Year 2021 30,656 TJ	Year 2022 30,954 TJ
>55-60					0.55	0.08	0.02	9.39		7.20	0.11	2.89		0.21			**0.28**	**1.38**
>60-65					0.18	0.01		0.04		0.02	< 0.01	2.46			1.27	15.76	**0.12**	**0.58**
>65-70					0.86	0.44		0.07			0.55	6.58		3.60	45.73	9.17	**1.79**	**1.79**
>70-75		< 0.01		19.47	3.18	7.05	10.85	42.08	7.96	16.36	19.06	13.89	0.04	1.72	< 0.01	8.42	**5.75**	**9.22**
>75-80			62.21	23.42	6.75	6.22	1.4		2.58	0.27	19.31	6.53	0.57	6.30			**8.03**	**5.62**
>80-85	41.73	25.91	25.47	0.01	9.26	7.50	4.73	0.12	1.21		0.7	11.81	4.69	2.09	0.59	4.24	**8.88**	**7.07**
>85-90	14.44	37.51		43.85	5.95	9.57	19.06	42.74	4.15	60.65	0.02	3.19	69.32	24.67	17.37	0.28	**13.61**	**17.62**
>90-95	10.6	7.61			55.85	34.02	6.45	1.68	15.33	11.46	3.08	1.94	25.36	57.95	35.04	62.14	**32.83**	**28.32**
>95-100	24.32	26.24	0.51		12.84	16.19	48.18	3.78	28.01		20.86		0.01	3.46			**17.91**	**10.27**
>100-105	8.89		10.87	2.67	4.59	14.95	9.17		38.55		35	11.37					**10.48**	**9.67**
>105-110	0.03	2.73	0.94	6.10		3.98	0.14		2.21	2.69	0.21	32.67					**0.18**	**7.28**
>110-115				4.47				0.09		1.36	0.13	3.32					**0.02**	**0.69**
>115-120											0.03						**< 0.01**	
>120											0.93	3.36					**0.12**	**0.48**

* Differences in the totals are due to roundings

*Table 6: Emission savings bioethanol by raw material, source and GHG reduction level - shares in %**

GHG Savings [%]	Maize								Wheat							
	Germany		EU		Third countries		Total bioethanol from maize		Germany		EU		Third countries		Total bioethanol from wheat	
	Year 2021 119 TJ	Year 2022 216 TJ	Year 2021 6,031 TJ	Year 2022 10,457 TJ	Year 2021 8,571 TJ	Year 2022 5,854 TJ	Year 2021 14,721 TJ	Year 2022 16,526 TJ	Year 2021 449 TJ	Year 2022 723 TJ	Year 2021 3,393 TJ	Year 2022 3,722 TJ	Year 2021 47 TJ	Year 2022 11 TJ	Year 2021 3,890 TJ	Year 2022 4,456 TJ
>55-60			0.69	0.00	0.46	0.24	0.55	0.08		16.20	0.13	0.32			0.11	2.89
>60-65			0.42		0.02	0.02	0.18	0.01		8.13	< 0.01	1.36			< 0.01	2.46
>65-70			1.12	0.18	0.69	0.91	0.86	0.44	0.27	2.23	0.59	7.19		90.59	0.55	6.58
>70-75		15.82	7.38	10.24	0.26	1.03	3.18	7.05	55.07	57.40	14.55	5.47			19.06	13.89
>75-80	9.23		13.96	9.13	1.63	1.26	6.75	6.22	44.53	1.21	15.66	7.58	41.74		19.31	6.53
>80-85	6.31	10.75	21.4	11.57	0.76	0.09	9.26	7.50		14.82		11.23	58.26	9.41	0.7	11.81
>85-90	3.37	10.72	12.66	13.47	1.26	2.56	5.95	9.57	0.14			3.82			0.02	3.19
>90-95	54.35	51.80	24.3	26.81	78.08	46.24	55.85	34.02			3.54	2.32			3.08	1.94
>95-100	26.74	8.25	7.75	9.59	16.24	28.28	12.84	16.19			23.91				20.86	
>100-105		2.67	10.32	16.38	0.62	12.85	4.59	14.95			40.12	13.61			35	11.37
>105-110				2.63		6.53		3.98			0.24	39.10			0.21	32.67
>110-115											0.15	3.97			0.13	3.32
>115-120											0.04				0.03	
>120											1.07	4.03			0.93	3.36

* Differences in the totals are due to roundings

*Table 7: Emission savings FAME by raw material and GHG reduction level - shares in %**

GHG Savings [%]	Waste/Residues		Ethiopian mus-tard		Palm oil		Rapeseed		Soy		Sunflowers		Total	
	Year 2021 28,881 TJ	Year 2022 41,162 TJ	Year 2021 51 TJ	Year 2022 147 TJ	Year 2021 28,520 TJ	Year 2022 9,267 TJ	Year 2021 22,084 TJ	Year 2022 22,259 TJ	Year 2021 4,612 TJ	Year 2022 8,679 TJ	Year 2021 629 TJ	Year 2022 1,138 TJ	Year 2021 84,776 TJ	Year 2022 82,652 TJ
>50-55								0.14	0.04	1.52			< 0.01	0.20
>55-60			2.88	0.85	0.28	0.53	0.62	0.15	4.31	1.43		4.16	0.49	0.31
>60-65		0.04	0.66		0.07	3.57	3.32	2.16	9.58	48.24	0.85	<0.01	1.42	6.07
>65-70			1.25		0.89	3.89	36.14	29.24	21.04	12.06	0.02	0.75	10.86	9.59
>70-75		<0.01	0.54		8.89	23.28	40.23	36.58	50.29	29.83	67.54	35.37	16.71	16.09
>75-80	0.04	0.14	4.77	0.06	48.63	33.67	9.71	9.01	14.14	6.93	17.47	3.65	19.8	7.05
>80-85	0.38	2.86	6.79	0.15	31.1	30.25	0.63	1.82	0.6		0.13	6.11	10.79	5.39
>85-90	19.56	35.34	1.98	0.64	10.11	3.91	0.86	1.64			0.92	3.94	10.3	18.53
>90-95	71.64	51.50	24.25	9.75		0.39	0.69	1.19			3.34	3.57	24.62	26.08
>95-100	8.38	10.11	5.37	5.95	0.05	0.51	0.43	1.36			1.43	4.10	3	5.53
>100-105			9.29	5.61			0.39	1.42			0.49	4.36	0.11	0.45
>105-110			5.22	9.42			0.24	1.73			0.73	3.75	0.07	0.53
>110-115			7.29	10.92			0.22	1.92			2.7	1.14	0.08	0.55
>115-120			1.6	20.33			0.31	2.39				1.47	0.08	0.70
>120			28.11	36.32			6.22	9.23	0.02		4.38	27.59	1.67	2.93

* Differences in the totals are due to roundings

*Table 8: Emission savings FAME by raw material, source and GHG reduction level - shares in %**

GHG Savings [%]	Waste/Residues								Rapeseed							
	Germany		EU		Third countries		FAME from A/R total		Germany		EU		Third countries		FAME from Total rapeseed	
	Year 2021 7,683 TJ	Year 2022 8,711 TJ	Year 2021 8,078 TJ	Year 2022 11,102 TJ	Year 2021 13,120 TJ	Year 2022 21,349 TJ	Year 2021 28,881 TJ	Year 2022 41,162 TJ	Year 2021 9,380 TJ	Year 2022 5,036 TJ	Year 2021 6,874 TJ	Year 2022 9,821 TJ	Year 2021 5,830 TJ	Year 2022 7,402 TJ	Year 2021 22,084 TJ	Year 2022 22,259 TJ
>55-60									0.02	0.02	0.86	0.17	1.30	0.19	0.62	0.14
>60-65				0.15				0.04	0.99	0.02	7.78	0.02	1.83	0.42	3.32	0.15
>65-70									56.34	0.82	24.74	4.11	17.07	0.48	36.14	2.16
>70-75						0.02		0.01	31.89	59.05	37.91	16.30	56.37	26.12	40.23	29.24
>75-80					0.09	0.27	0.04	0.14	10.76	29.47	2.44	26.80	16.61	54.39	9.71	36.58
>80-85	0.01	0.48	0.75	1.37	0.37	4.60	0.38	2.86		10.63	1.93	5.86	0.12	12.10	0.63	9.01
>85-90	9.98	9.18	19.28	38.63	25.34	44.30	19.56	35.34			2.73	4.13	0.03		0.86	1.82
>90-95	66.88	52.38	75.39	56.27	72.12	48.66	71.64	51.50			2.20	3.57		0.20	0.69	1.64
>95-100	23.13	37.97	4.58	3.57	2.08	2.15	8.38	10.11			1.31	2.70	0.09		0.43	1.19
>100-105											0.72	3.04	0.63	0.07	0.39	1.36
>105-110											0.36	3.22	0.47		0.24	1.42
>110-115											0.59	3.53	0.12	0.51	0.22	1.73
>115-120											0.75	4.35	0.30		0.31	1.92
>120											15.69	4.97	5.06	0.60	6.22	2.39

* Differences in the totals are due to roundings

*Table 9: Emission savings vegetable oil by raw material and GHG reduction level - shares in %**

GHG Savings [%]	Palm oil		Rapeseed		Sunflowers	
	Year 2021 8 TJ	Year 2022 1 TJ	Year 2021 30 TJ	Year 2022 34 TJ	Year 2021 - TJ	Year 2022 3 TJ
>55-60			0.05	31.79		
>60-65	100.00		41.98	18.48		100.00
>65-70			8.74	28.51		
>70-75			49.24	21.22		
>75-80		100.00				

* Differences in the totals are due to roundings

*Table 10: Emission savings biomethane by raw material and GHG reduction level - shares in %**

GHG Savings [%]	Waste/Residues		Fodder beet		Cereals - Whole plant		Grass/arable grass		Rye		Silage maize		Sugar beet		Total	
	Year 2021 2,750 TJ	Year 2022 4,678 TJ	Year 2021 1 TJ	Year 2022 - TJ	Year 2021 45 TJ	Year 2022 21 TJ	Year 2021 14 TJ	Year 2022 4 TJ	Year 2021 26 TJ	Year 2022 - TJ	Year 2021 610 TJ	Year 2022 82 TJ	Year 2021 32 TJ	Year 2022 <1 TJ	Year 2021 3,477 TJ	Year 2022 4,786 TJ
>50-55																<0.01
>55-60												0.08				0.04
>60-65								55.33								
>65-70																0.03
>70-75					4.22		81.60	44.67	80.68						1.00	1.91
>75-80	2.86	1.46			17.21	17.63	18.40		19.32		20.25	23.60			6.25	7.02
>80-85	0.78	5.81			53.49	82.37					22.74	57.30	3.17		5.32	6.03
>85-90	6.17	5.83	100.00		25.08						48.86	19.01	48.46	100.00	14.23	16.75
>90-95	31.06	17.13									8.15		48.37		26.43	37.51
>95-100	57.44	38.37													45.43	
>100-105																0.20
>105-110		0.20														0.33
>110-115		0.34														
>115-120																30.18
>120	1.69	30.87										0.08			1.34	<0.01

* Differences in the totals are due to roundings

*Table 11: Emissions reduction advanced biofuels according to 38th BImSchV Annex 1, by type and GHG reduction level - shares in %**

GHG Savings [%]	Number 2		Number 3		Number 4		Number 5		Number 6		Number 7		Number 8		Number 9		Number 10		Number 11		Number 15		Number 16	
	Year 2021 37 TJ	Year 2022 120 TJ	Year 2021 59 TJ	Year 2022 645 TJ	Year 2021 3,463 TJ	Year 2022 7,310 TJ	Year 2021 302 TJ	Year 2022 371 TJ	Year 2021 228 TJ	Year 2022 1,886 TJ	Year 2021 2,835 TJ	Year 2022 12,878 TJ	Year 2021 - TJ	Year 2022 38 TJ	Year 2021 697 TJ	Year 2022 1,277 TJ	Year 2021 - TJ	Year 2022 234 TJ	Year 2021 - TJ	Year 2022 25 TJ	Year 2021 1,495 TJ	Year 2022 3,431 TJ	Year 2021 4 TJ	Year 2022 18 TJ
>55-60				7.10						0.52														
>60-65			0.84	66.67						1.53				44.31										
>65-70																						0.04		
>70-75						0.05					1.20									0.01	0.01			
>75-80			98.90	10.48		0.79	0.44				0.49	3.18			2.70	0.07					1.17	1.74		
>80-85			0.25	13.47		0.42	2.60	15.88	3.03	6.12	0.64	12.25						100			96.22	60.84		77.47
>85-90	9.40	10.12		2.24	6.28	31.29		0.74	6.28	3.77	48.83	48.76		55.69	1.33	18.15				88.65		32.89		22.53
>90-95	68.14	50.23		0.06	46.89	22.34		0.03	47.64	6.39	48.84	35.39			74.94	80.61				11.34		2.73	100	
>95-100	22.46	39.03			46.83	45.11	96.96	83.34	22.65	2.92		0.41			21.03	1.16					2.60	1.76		
>100-105																								
>105-110										0.50														
>110-115										0.84														
>115-120																								
>120		0.63							20.40	77.42														

* Differences in the totals are due to roundings

*Table 12: Emissions reduction non-advanced biofuels according to 38th BImSchV, by type and GHG reduction level - shares in %**

GHG Savings [%]	Used vegetable oils		Other		Total	
	Year 2021 21,172 TJ	Year 2022 30,010 TJ	Year 2021 9,810 TJ	Year 2022 6,271 TJ	Year 2021 30,982 TJ	Year 2022 36,281 TJ
>75-80				<0.01		<0.01
>80-85	0.08	3.00	8.46	3.53	2.73	3.09
>85-90	18.95	29.50	21.58	34.95	19.78	30.44
>90-95	78.72	60.22	48.97	43.38	69.30	57.31
>95-100	2.26	7.28	19.40	17.61	7.69	9.07
>100-105			1.58		0.50	
>105-110			0.01	0.53	<0.01	0.09

* Differences in the totals are due to roundings

7. Combustible biofuels

Compared to the previous year, 7% less combustible biofuel was registered for electricity generation and feed-in under the EEG.

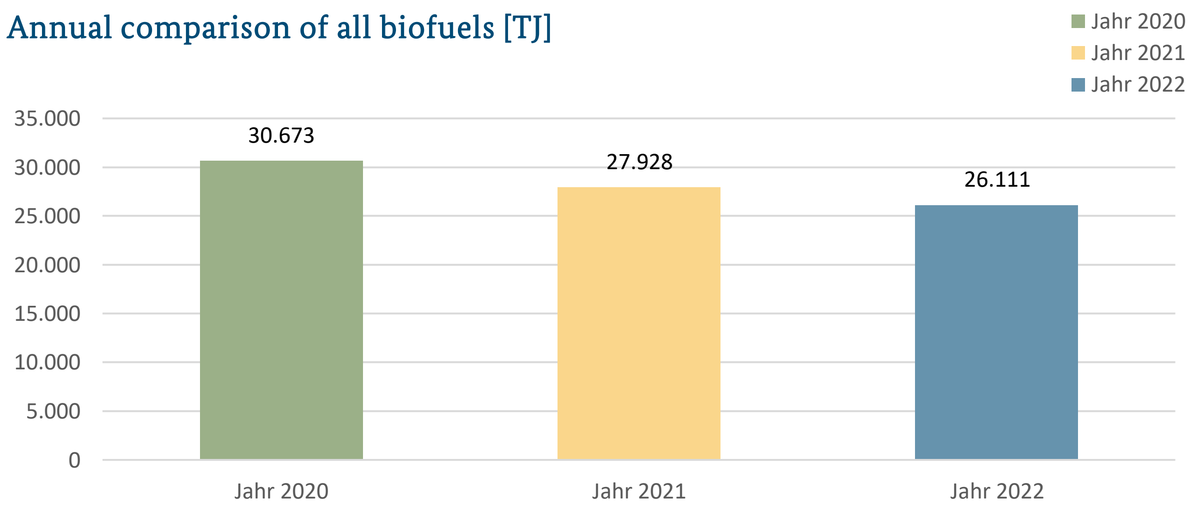


Figure 38

7.1 Biofuel types

Biofuels from the pulp industry account for 90% of the total quantity. This is thick lye that is produced during pulp production.

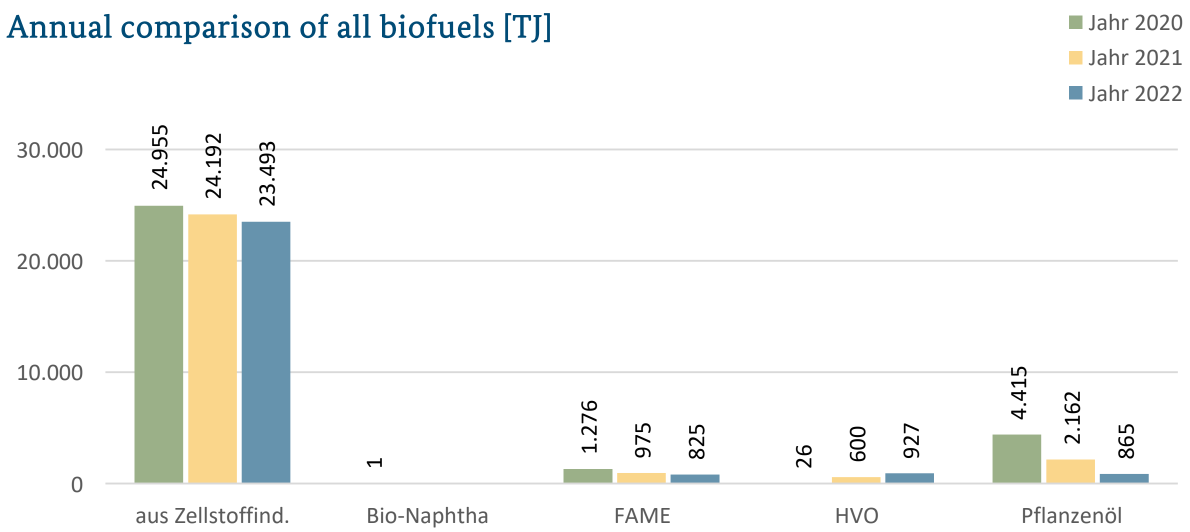


Figure 39

7.2 Raw materials and source of vegetable oils used as combustible biofuel

Compared to the previous year, 60% less vegetable oil was used. The decline is largely due to the reduction in palm oil previously used (-73%).

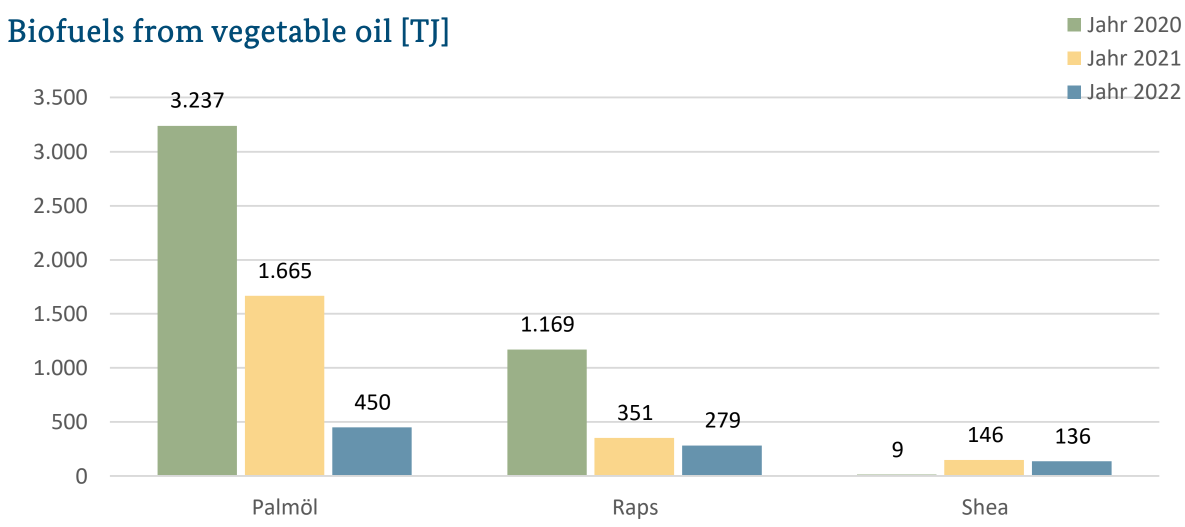


Figure 40

In particular, the two most important countries for growing oil palms (Indonesia and Malaysia) are contributing to the decline in palm oil.

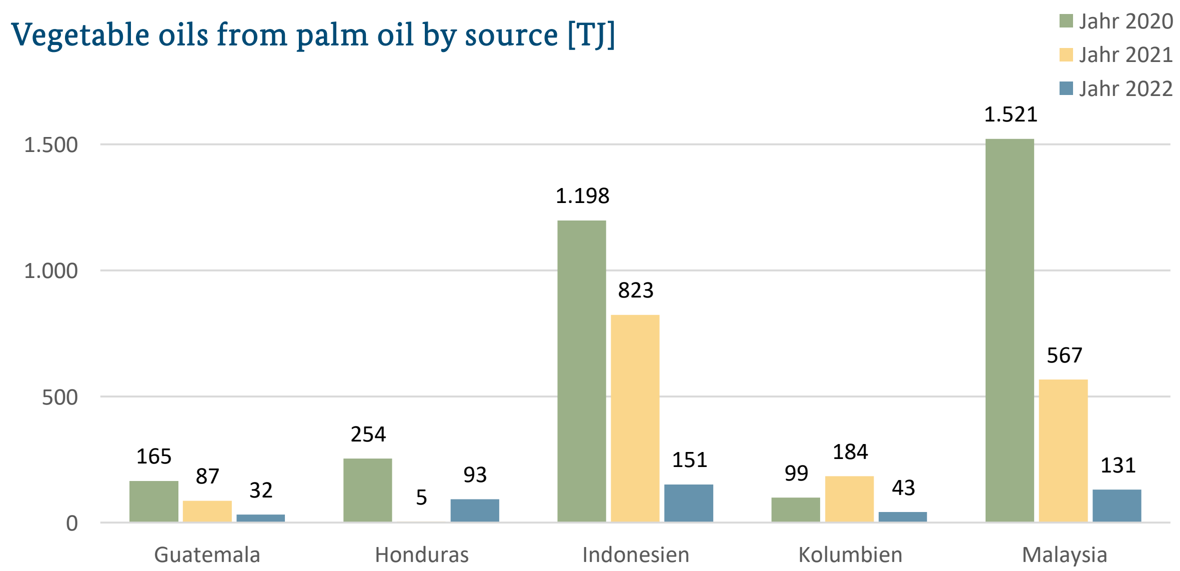


Figure 41

7.3 Greenhouse gas emissions and savings

In calculating the emission savings, the total emissions[5] generated in the production of the combustible biofuel were compared to the comparative value for fossil fuels for electricity generation of 91 g CO_2eq/MJ.

Due to the large share of thick liquor from the pulp industry with very low emissions, the total savings in the combustible biofuel sector are traditionally very high.

The emission savings presented below are based on the comparison of pure combustible biofuels and pure combustible fossil fuels.

The use of combustible biofuels for electricity generation saved about 2.2 million tonnes of CO_2 equivalent in 2022.

Emissions and savings of combustible biofuels [tCO_2eq/TJ]

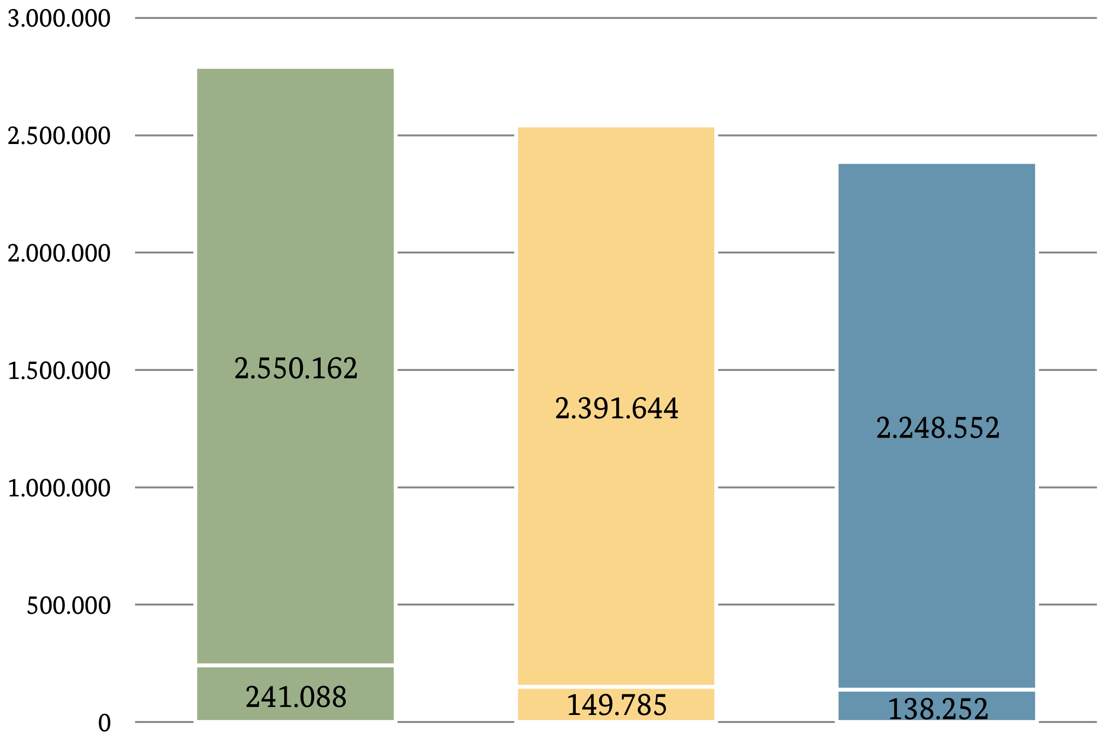


Figure 42

[5] Emissions accounting is based on the same methodology as for biofuels, cf. footnote 1, page 8

Average emissions were on a similar level compared to the previous year.

Emissions generated by combustible biofuels [tCO_2eq/TJ]

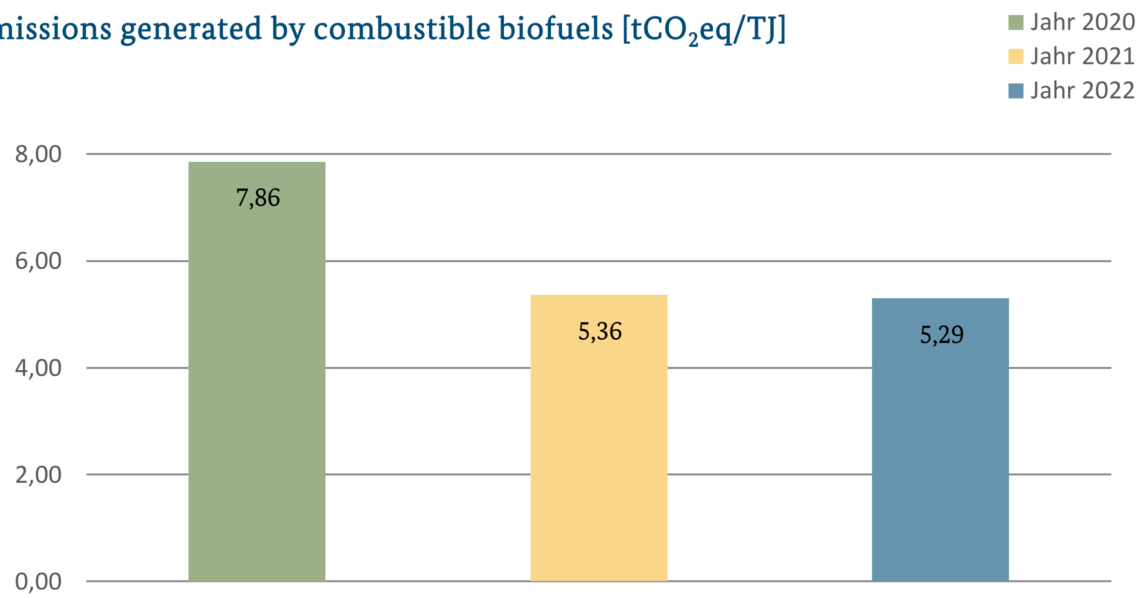


Figure 43

As a result, the average emissions savings remained almost the same.

Emission savings of combustible biofuels [%]

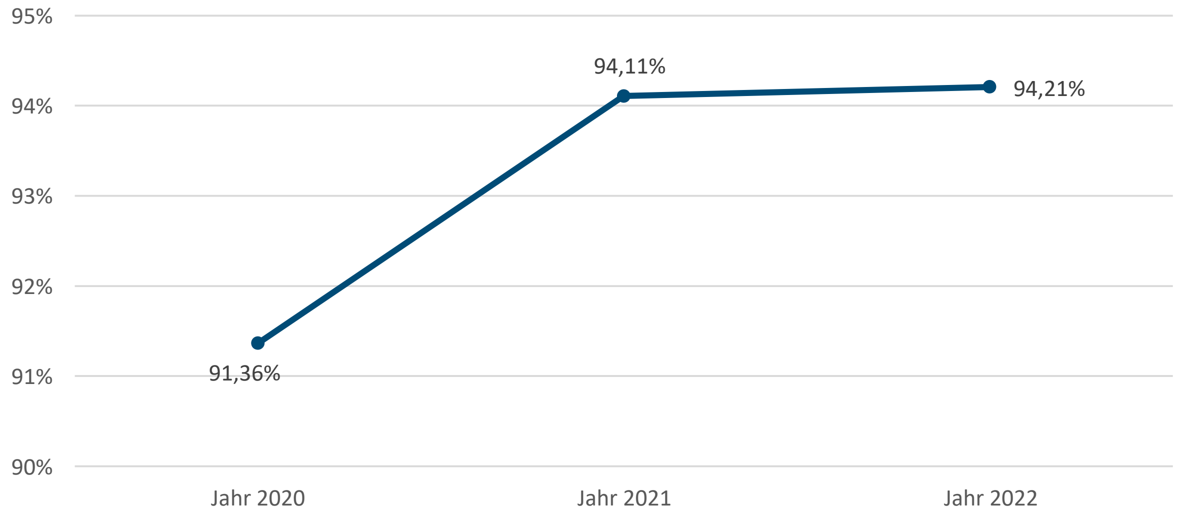


Figure 44

FAME and vegetable oils caused significantly more emissions compared to HVO and the biofuels from the pulp industry.

Combustible biofuel emissions by combustible fuel type [tCO_2eq/TJ]

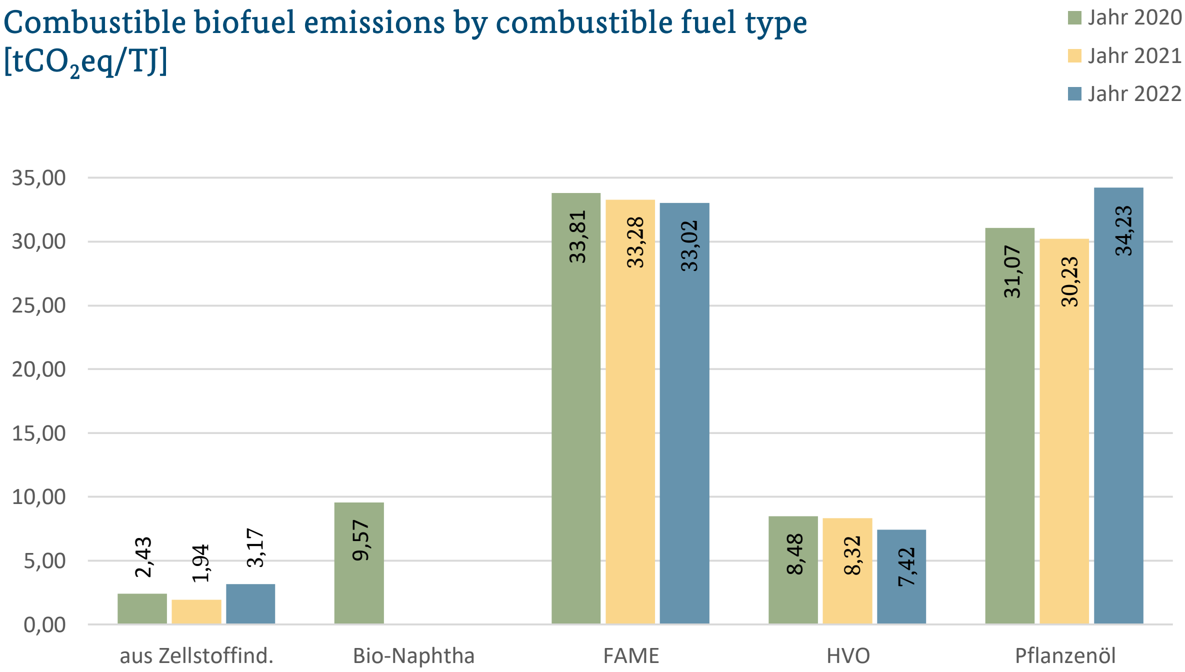


Figure 45

The individual biofuel types showed only relatively minor changes in the percentage of emission savings compared to the previous year.

Emission savings of combustible biofuels by combustible fuel type [%]

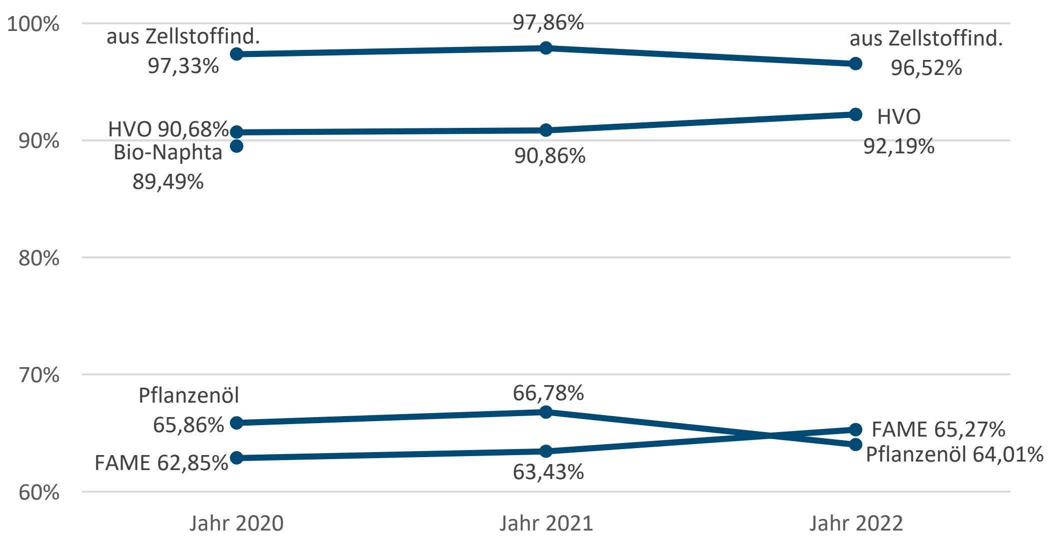


Figure 46

8. Derecognition accounts

To enable economic operators to comply with their mass accounting rules, derecognition accounts have been set up in Nabisy for various purposes. These are:

- Country accounts, if the goods leave Germany and the recipient is not registered in Nabisy,
- Derecognition accounts for other purposes, e.g. for use for further conversion or other technical purposes,
- Shortfall as at the balance sheet date, for cases where, at the end of a mass accounting period, existing evidence is not physically matched by sustainable goods.

8.1 Bookings to accounts of other Member States and third countries

Biofuels and combustible biofuels that are recorded in the Nabisy database and exported to other countries must be booked out by the economic operators in Nabisy to the account of the respective country. In the reporting year, 133,753 TJ (previous year: 127,441 TJ) of biofuels and combustible biofuels were transferred to accounts of countries inside and outside the European Union.

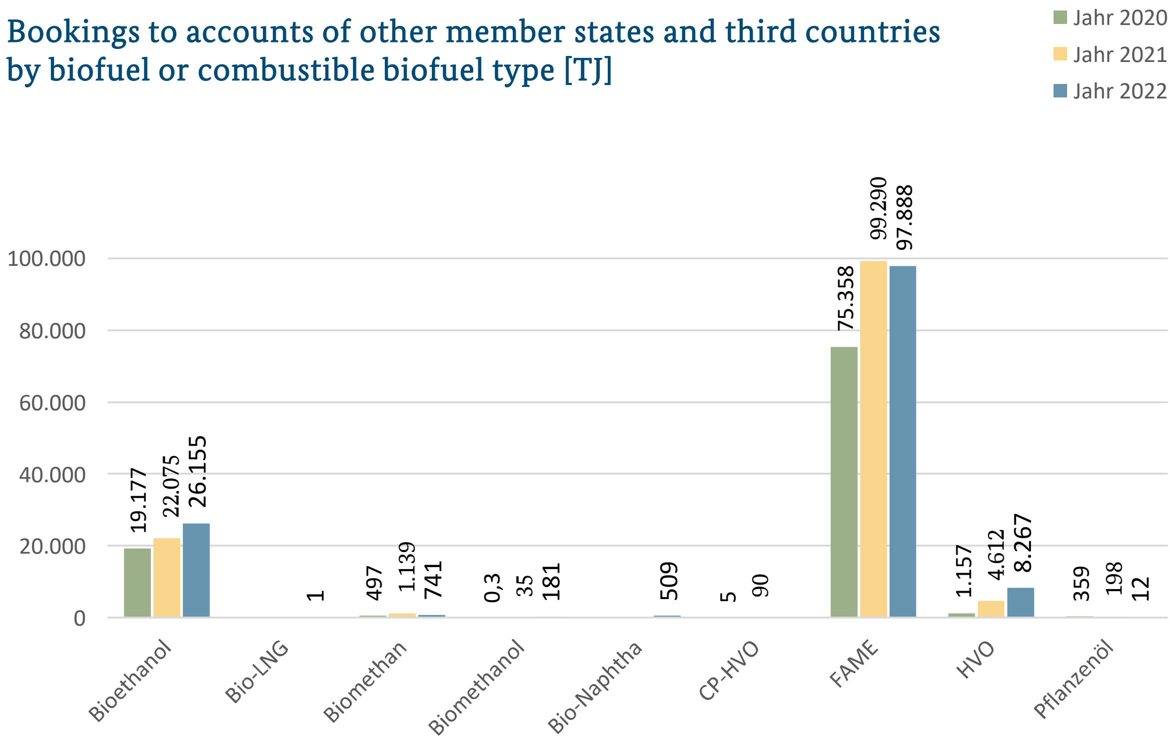


Figure 47

The following figure only shows the country accounts to which more than 5,000 TJ were booked in at least one comparison year. A complete overview of the volumes booked out can be found Table 13 on page 80.

The UK (18%), France (17%) and the Netherlands (16%) accounted for the largest quantities of biofuels and bioliquids derecognised.

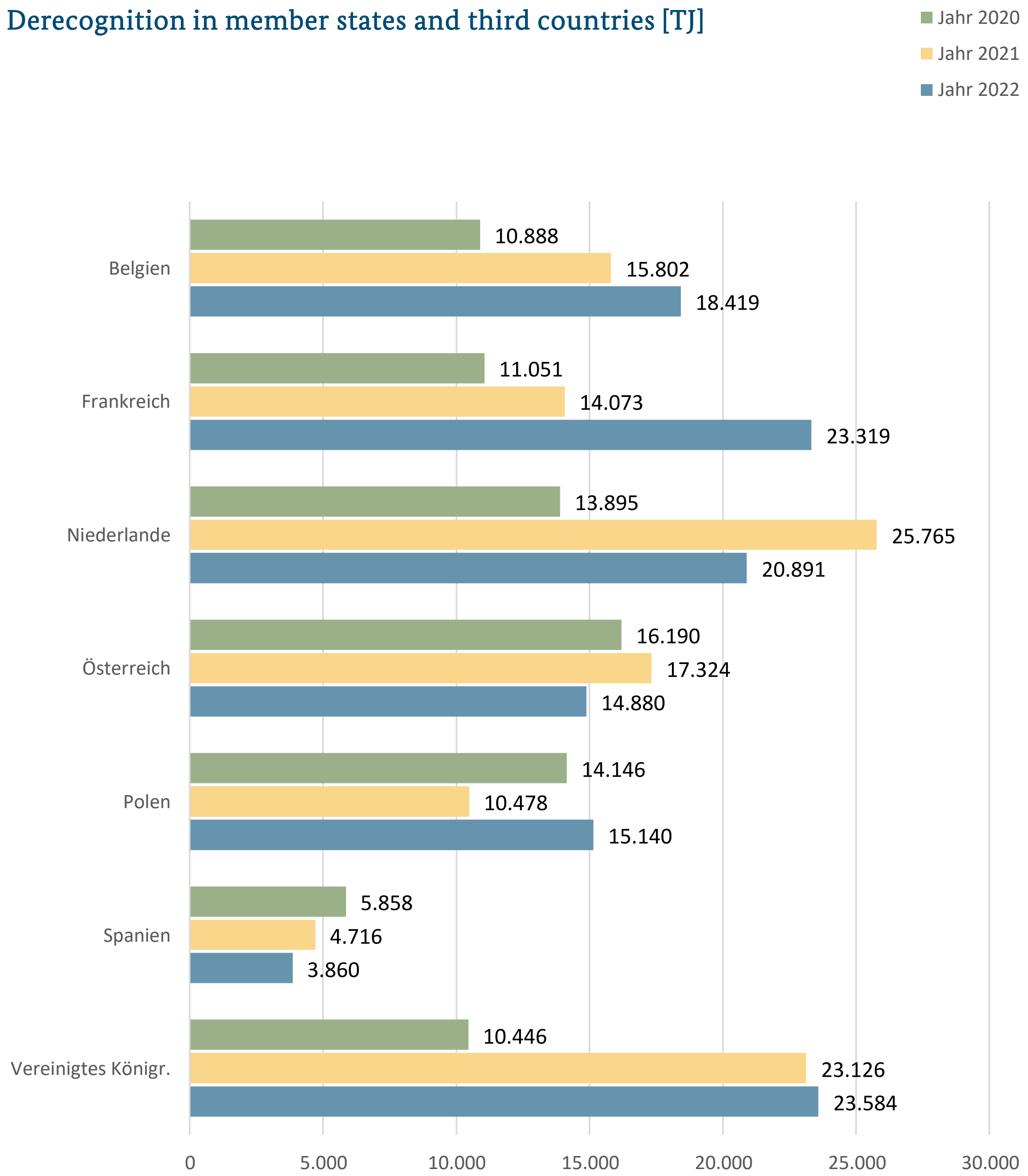


Figure 48

*Table 13: Derecognition 2022 of biofuels or bioliquids in Member States and third countries [TJ] **

Derecognition account	Waste/ Residues	Brassica carinata	Barley	Grass/ arable grass	Maize	Palm oil	Rape-seed	Rye	Soy	Sun-flowers	Sorghum	Triticale	Wheat	Sugar cane	Sugar beet	Total
Belgium	4,431				502	5,095	1,187		6,858			11	125	197	12	18,419
Bulgaria	170				30							1	34			234
Denmark	373		10		972		181	18					552	143	568	2,816
Estonia	26															26
France	1,294		58		563	2	14,246		4,576	454			809	1,260	57	23,319
Greece					487								12	103		603
Ireland	103				58								3			164
Italy	1				21		11					2				34
Croatia	65				6	9	58		152				4			296
Lithuania	40				59		12	8	131			9		93	126	478
Luxembourg	374	2			149	77	188	3	199				52	2		1,047
Netherlands	12,621		194		5,179	5	2		72	<1	1		1,783	696	338	20,891
Norway	261															261
Austria	1,449	<1	24	<1	884	<1	6,874	74	4,995	146	<1	65	235	20	112	14,879
Poland	298		17		266	1,779	8,597	30	3,488			81	161	25	397	15,140
Romania	393				543		12		4				144			1,095
Sweden	494				965		117						54	173	327	2,130
Switzerland	435		1		5								11	2	3	458
Slovakia	4				63		25									91
Slovenia	2,007				119	5	84		41			74	141			2,471
Spain	3,614					97	12		138							3,860
Czech Republic	55		26		49		240	2	20			36	77	3	44	552
Hungary	412		1		39		352	1	10	1		27	58			901
United Kingdom	19,312		6	2	1,277	171	328		1,364				446	567	111	23,584
Total	48,232	2	337	2	12,237	7,241	32,525	137	22,049	601	1	305	4,703	3,284	2,096	133,753

* Differences in the totals are due to roundings

8.2 Emission savings with derecognition booking to country accounts

Almost all of the quantities derecognised to country accounts had lower GHG savings than the quantities counted towards the German GHG reduction quota.

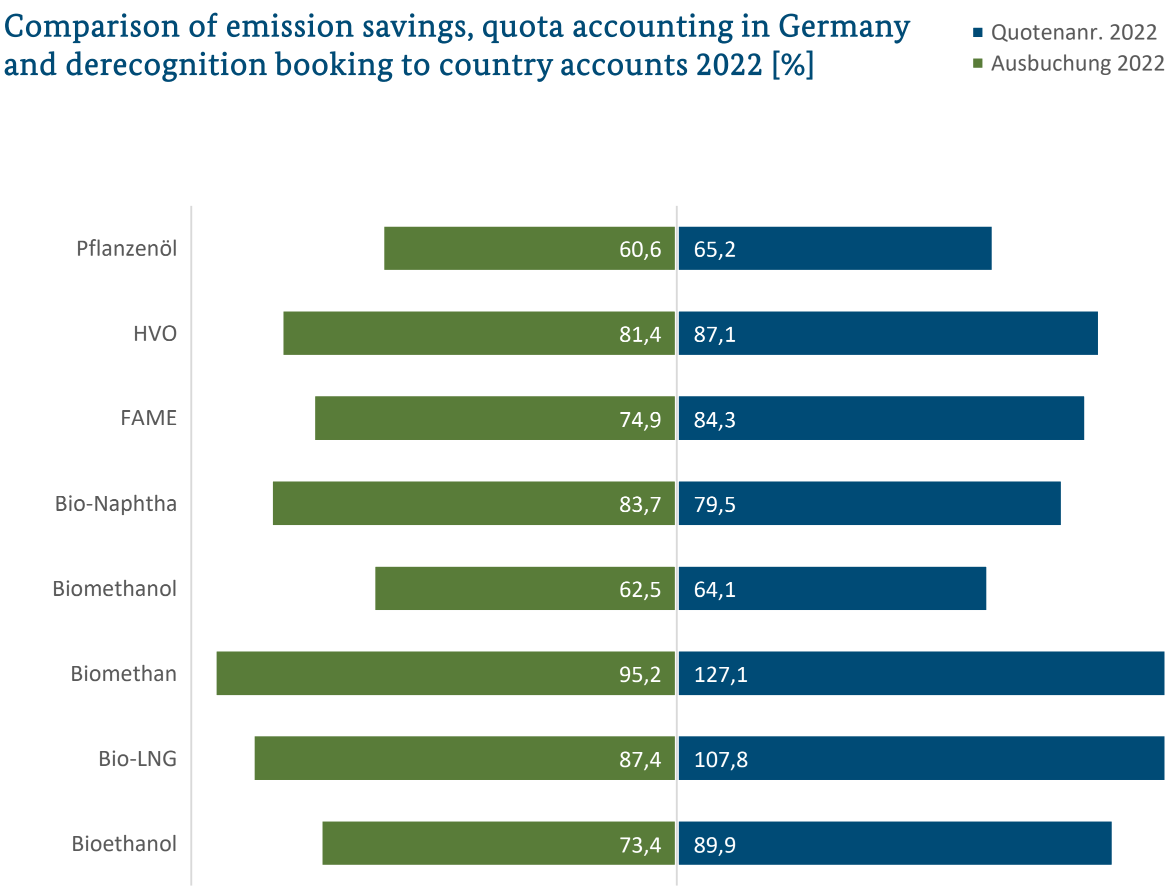


Figure 49

8.3 Derecognition bookings to other accounts

In addition to derecognition to country accounts, the Nabisy electronic database has further derecognition options for verified quantities that are not or were not used for energy purposes in Germany. The following figure shows the development in three of these other accounts.

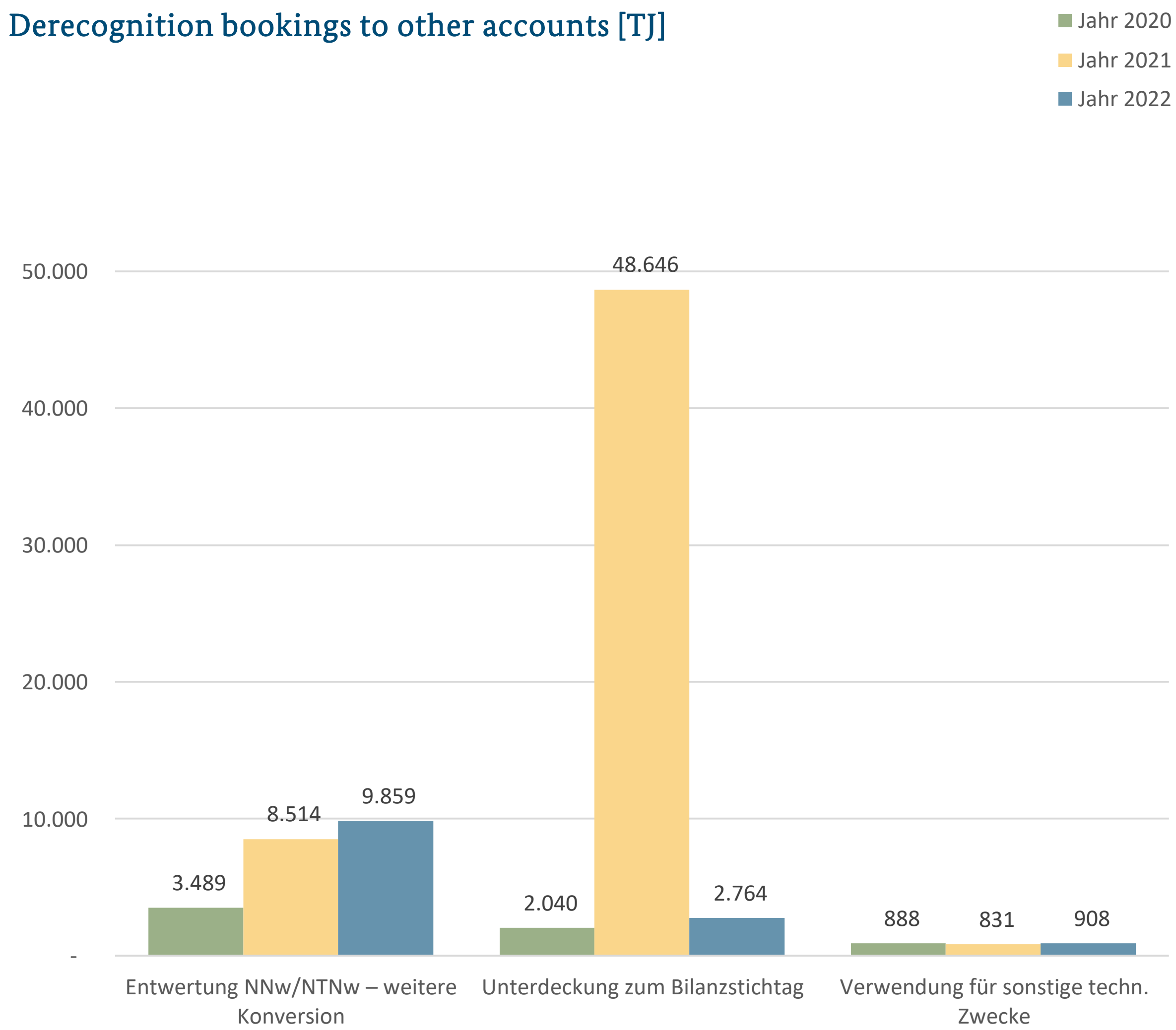


Figure 50

9. Prospects

Legislative changes and innovations at EU level require national legislation to be adapted again.

The national implementation of the Renewable Energy Directive (RED II) has already led to an increase in new economic operators subject to certification in the area of the Biomass Electricity Sustainability Ordinance in 2022.

Implementing Regulation EU 2022/996 will make specific requirements for certification schemes and certification bodies binding from 30 December 2023. Certification bodies that must cooperate with a certification scheme recognised by the EU Commission require accreditation by the national accreditation body. In future, the recognition and monitoring of certification bodies will require close coordination with the German Accreditation Body (DAkkS). The Member States are called upon to harmonise and coordinate their inspection activities vis-à-vis the certification bodies and economic operators in order to proceed as uniformly as possible and to avoid duplicate audits.

When the EU Renewable Energy Directive 2023/2413 (REDIII) comes into force in November 2023, the group of economic operators subject to certification will expand once again. RED III is to be implemented nationally by mid-2025.

Overall, the resulting requirements will continue to increase the BLE's inspection workload in the future.

10. Background data

Table 14: Biofuel types by raw material [TJ]

Raw material	Bioethanol			Bio-LNG			Biomethane			Biomethanol			Organic naphtha		FAME			HVO			CP-HVO	Vegetable oil		
	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022	2021	2022	2020	2021	2022	2020	2021	2022	2020	2020	2021	2022
Waste and residues	1,661	1,748	1,230	1	62	110	1,885	2,750	4,678	10	<0.5	514	1	20	32,975	28,881	41,162	9,228	6,659	16,801	2			
Brassica carinata															73	51	147							
Fodder beet							2	1																
Barley	1,034	977	655																					
Cereal - Whole plant							10	45	21															
Grass/ arable grass							10	14	4															
Maize	17,367	14,721	16,526				643	610	82															
Palm oil														24	22,216	28,520	9,267	34,665	13,066	4,049	1,400	28	8	1
Rapeseed															28,274	22,084	22,259				10	26	30	34
Rye	2,111	4,077	1,001					26																
Soy															1,994	4,612	8,679							
Sunflowers															3,897	629	1,138			142	694			3
Triticale	1,301	1,401	2,532																					
Wheat	3,562	3,890	4,456																					
Sugar cane	2,062	2,967	4,131																					
Sugar beet	429	877	423				27	32	<0.5															
Total	29,528	30,656	30,954	1	62	110	2,577	3,477	4,786	10	<0.5	514	1	44	89,429	84,776	82,652	43,893	19,725	20,991	2,106	54	38	38

Table 15: Biofuel types by raw material [kt]

Raw material	Bioethanol			Bio-LNG			Biomethane			Biomethanol			Organic naphtha		FAME			HVO			CP-HVO	Vegetable oil		
	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022	2021	2022	2020	2021	2022	2020	2021	2022	2020	2020	2021	2022
Waste and residues	63	66	46	<0.5	1	2	38	55	94	<0.5	<0.5	26	<0.5	1	882	772	1,101	212	153	385	<0.5			
Brassica carinata															2	1	4							
Fodder beet							<0.5	<0.5																
Barley	39	37	25																					
Cereal - Whole plant							<0.5	1	<0.5															
Grass/ arable grass							<0.5	<0.5	<0.5															
Maize	656	556	624				13	12	2															
Palm oil														1	594	763	248	795	300	93	32	1	<0.5	<0.5
Rapeseed															757	591	596				<0.5	1	1	1
Rye	80	154	38					1																
Soy															53	123	232							
Sunflowers															104	17	30			3	16			<0.5
Triticale	49	53	96																					
Wheat	135	147	168																					
Sugar cane	78	112	156																					
Sugar beet	16	33	16				1	1	<0.5															
Total	1,116	1,158	1,170	<0.5	1	2	52	70	96	<0.5	<0.5	26	<0.5	1	2,393	2,267	2,212	1,007	453	482	48	1	1	1

Table 16: Biofuels by origin of raw material [TJ]

Raw material	Africa			Asia			Australia			Europe			Central America			North America			South America		
	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022
Waste and residues	648	644	864	17,842	15,428	30,485	14	30	122	24,812	22,271	30,175	15	28	26	1,681	777	1,239	749	924	1,605
Brassica carinata																27	1	6	46	50	141
Fodder beet										2	1										
Barley										1,034	977	655									
Cereal - Whole plant										10	45	21									
Grass/ arable grass										10	14	4									
Maize									1	18,007	15,200	15,772				<0.5	54	53	2	76	782
Palm oil				52,975	38,936	12,667	4,214	3,115					4,842	2,571	550				492	87	123
Rapeseed				110	11	11	2		6,173	22,160	17,255	15,905				1,827	1,604	182		129	23
Rye										2,111	4,103	1,001									
Soy									<0.5	70	299	331	2					4	1,922	4,313	8,343
Sunflowers										4,589	629	1,284					<0.5				
Triticale										1,301	1,401	2,532									
Wheat										3,562	3,890	4,456									
Sugar cane													688	539	1,641				1,375	2,428	2,491
Sugar beet										456	908	423									
Total	648	644	864	70,927	54,376	43,163	4,229	3,144	6,297	78,126	66,992	72,559	5,547	3,138	2,217	3,535	2,436	1,483	4,586	8,007	13,508

Table 17: Biofuels by origin of raw material [kt]

Raw material	Africa			Asia			Australia			Europe			Central America			North America			South America		
	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022
Waste and residues	17	17	23	451	393	764	<0.5	1	3	665	590	775	<0.5	1	1	41	20	44	20	25	46
Brassica carinata																1	<0.5	<0.5	1	1	4
Fodder beet										<0.5	<0.5										
Barley										39	37	25									
Cereal - Whole plant										<0.5	1	<0.5									
Grass/ arable grass										<0.5	<0.5	<0.5									
Maize									<0.5	669	564	595				<0.5	2.06	2	<0.5	3	30
Palm oil				1,285	992	323	113	83					125	69	15				13	2	3
Rapeseed				3	<0.5	<0.5	<0.5		165	593	462	426				49	43	5		3	1
Rye										80	155	38									
Soy									<0.5	2	8	9	<0.5					<0.5	51	115	223
Sunflowers										120	17	34					<0.5				
Triticale										49	53	96									
Wheat										135	147	168									
Sugar cane													26	20	62				52	92	94
Sugar beet										17	34	16									
Total	17	17	23	1,739	1,385	1,087	113	84	168	2,368	2,067	2,181	152	90	77	91	65	51	137	242	400

Table 18: Biofuels 2022 by place of production [TJ]

Raw material	Africa	Asia	Europe	Central America	North America	South America	Total
Waste and residues	36	16,916	46,695		514	355	64,516
Brassica carinata			147				147
Fodder beet							
Barley			655				655
Cereal - Whole plant			21				21
Grass/ arable grass			4				4
Maize			16,493		53	63	16,608
Palm oil		1,871	11,469				13,340
Rapeseed			22,293				22,293
Rye			1,001				1,001
Soy			4,214			4,465	8,679
Sunflowers			1,284				1,284
Triticale			2,532				2,532
Wheat			4,456				4,456
Sugar cane				1,641		2,491	4,131
Sugar beet			423				423
Total	36	18,786	111,687	1,641	567	7,373	140,090

Table 19: Biofuels 2022 by place of production [kt]

Raw material	Africa	Asia	Europe	Central America	North America	South America	Total
Waste and residues	1	428	1,188		26	12	1,655
Brassica carinata			4				4
Fodder beet							
Barley			25				25
Cereal - Whole plant			<0.5				<0.5
Grass/ arable grass			<0.5				<0.5
Maize			622		2	2	626
Palm oil		50	292				341
Rapeseed			597				597
Rye			38				38
Soy			113			119	232
Sunflowers			34				34
Triticale			96				96
Wheat			168				168
Sugar cane				62		94	156
Sugar beet			16				16
Total	1	478	3,192	62	28	228	3,988

Table 20: Biofuels by raw material

Raw material	Year 2020	Year 2021	Year 2022	Year 2020	Year 2021	Year 2022
	[TJ]	[TJ]	[TJ]	[kt]	[kt]	[kt]
Waste and residues	45,761	40,102	64,516	1,195	1,047	1,655
Brassica carinata	73	51	147	2	1	4
Fodder beet	2	1		<0.5	<0.5	
Barley	1,034	977	655	39	37	25
Cereal - Whole plant	10	45	21	<0.5	1	<0.5
Grass/ arable grass	10	14	4	<0.5	<0.5	<0.5
Maize	18,010	15,331	16,608	669	568	626
Palm oil	58,308	41,594	13,340	1,423	1,063	341
Rapeseed	28,310	22,113	22,293	757	592	597
Rye	2,111	4,103	1,001	80	155	38
Soy	1,994	4,612	8,679	53	123	232
Sunflowers	4,591	629	1,284	120	17	34
Triticale	1,301	1,401	2,532	49	53	96
Wheat	3,562	3,890	4,456	135	147	168
Sugar cane	2,062	2,967	4,131	78	112	156
Sugar beet	456	908	423	17	34	16
Total	167,597	138,737	140,090	4,617	3,950	3,988

Table 21: Biofuels, raw material from Germany [TJ]

Raw material	Bioethanol			Bio-LNG		Biomethane			CP-HVO	FAME			HVO		Vegetable oil			Total		
	2020	2021	2022	2021	2022	2020	2021	2022	2020	2020	2021	2022	2021	2022	2020	2021	2022	2020	2021	2022
Waste and residues	303	305	31	48	16	1,858	2,484	4,249		7,759	7,683	8,711	10	11				9,920	10,531	13,017
Fodder beet						2	1											2	1	
Barley	884	856	568															884	856	568
Cereal - Whole plant						10	44	21										10	44	21
Grass/ arable grass								2												2
Maize	109	119	216			643	610	82										752	729	298
Rapeseed									4	11,396	9,380	5,036			26	30	28	11,426	9,409	5,065
Rye	537	1,348	488				26											537	1,374	488
Soy											2	8							2	8
Sunflowers											<0.5								<0.5	
Triticale	145	237	441															145	237	441
Wheat	117	449	723															117	449	723
Sugar beet	392	771	419			27	32	<0.5										419	803	419
Total	2,487	4,086	2,886	48	16	2,540	3,196	4,354	4	19,155	17,065	13,755	10	11	26	30	28	24,212	24,435	21,050

Table 22: Biofuels from waste and residues [TJ]

advanced biofuels according to the 38th BlmSchV Annex 1 No.	Year 2020	Year 2021	Year 2022
2 (biomass share of mixed municipal waste)	<0.5	37	120
3 (biowaste from private households)	94	59	645
4 (biomass share of mixed municipal waste)	1,112	3,463	7,310
5 (straw)	129	302	371
6 (liquid manure and sewage sludge)	184	228	1,886
7 (wastewater from palm oil mills and empty palm fruit bunches)	3,290	2,835	12,878
8 (tall oil pitch)			38
9 (crude glycerine)	47	697	1,277
10 (bagasse)			234
11 (grape marc and lees)	<0.5		25
15 (biomass shares of waste and residues from forestry)	1,433	1,495	3,431
16 (other non-food cellulosic material)		4	18
Subtotal advanced biofuels	*6,288*	*9,119*	*28,235*
used vegetable oils	29,286	24,249[6]	30,010
Other	10,188	6,733[6]	6,271
Subtotal non-advanced biofuels	*39,473*	*30,982*	*36,281*
Total waste and residues	45,761	40,102	64,516

[6] corrected value

Table 23: Biofuels 2022 from waste and residues by origin of raw material [TJ]

advanced biofuels according to the 38th BlmSchV Annex 1 No.	Africa	Asia	Australia	Europe	Central America	North America	South America	Total
2 (biomass share of mixed municipal waste)				120				120
3 (biowaste from private households)				169		476		645
4 (biomass share of mixed municipal waste)		1,664		5,569		69	9	7,310
5 (straw)				371				371
6 (liquid manure and sewage sludge)				1,848		39		1,886
7 (wastewater from palm oil mills and empty palm fruit bunches)	31	12,847					<0.5	12,878
8 (tall oil pitch)				17		21		38
9 (crude glycerine)	12			1,265				1,277
10 (bagasse)							234	234
11 (grape marc and lees)				25				25
15 (biomass shares of waste and residues from forestry)		529		2,771		132		3,431
16 (other non-food cellulosic material)				18				18
Subtotal advanced biofuels	*43*	*15,039*		*12,173*		*736*	*243*	*28,235*
used vegetable oils	730	14,883	120	13,026	26	387	838	30,010
Other	91	563	2	4,976		116	524	6,271
Subtotal non-advanced biofuels	*821*	*15,446*	*122*	*18,002*	*26*	*503*	*1,362*	*36,281*
Total waste and residues	864	30,485	122	30,175	26	1,239	1,605	64,516

Table 24: Biofuels 2022 from waste and residues by origin of raw material [TJ]

advanced biofuels according to the 38th BlmSchV Annex 1 No.	Africa	Asia	Australia	Europe	Central America	North America	South America	Total
2 (biomass share of mixed municipal waste)				120				**120**
3 (biowaste from private households)				169		476		**645**
4 (biomass share of mixed municipal waste)		1,604		5,697			9	**7,310**
5 (straw)				371				**371**
6 (liquid manure and sewage sludge)				1,848		39		**1,886**
7 (wastewater from palm oil mills and empty palm fruit bunches)		6,871		6,007				**12,878**
8 (tall oil pitch)				38				**38**
9 (crude glycerine)	12			1,265				**1,277**
10 (bagasse)							234	**234**
11 (grape marc and lees)				25				**25**
15 (biomass shares of waste and residues from forestry)				3,431				**3,431**
16 (other non-food cellulosic material)				18				**18**
Subtotal advanced biofuels	***12***	***8,475***		***18,990***		***514***	***243***	***28,235***
used vegetable oils	24	7,984		22,002				**30,010**
Other		456		5,703			112	**6,271**
Subtotal non-advanced biofuels	***24***	***8,440***		***27,705***			***112***	***36,281***
Total waste and residues	**36**	**16,916**		**46,695**		**514**	**355**	**64,516**

Table 25: Biofuels, emissions and emission savings

Biofuel type	Emissions 2020	Emissions 2021	Emissions 2022	Savings 2020	Savings 2021	Savings 2022
	[t CO_2eq/TJ]	[t CO_2eq/TJ]	[t CO_2eq/TJ]	[%]	[%]	[%]
Bioethanol	7.44	9.18	9.39	92.02	90.21	89.94
Bio-LNG	13.70	6.79	-7.33	85.44	92.78	107.79
Biomethane	8.94	5.86	-25.47	90.50	93.77	127.07
Biomethanol	33.50	33.50	33.48	64.09	64.09	64.12
Bionaphtha		20.07	19.14		78.49	79.49
FAME	17.97	16.86	14.93	81.11	82.33	84.31
HVO	19.82	16.02	12.24	79.15	83.15	87.13
CP-HVO	17.69			81.40		
Vegetable oil	31.60	31.73	33.06	66.78	66.70	65.24
weighted average of all biofuels	16.46	14.77	11.98	82.63	84.45	87.35

Table 26: Types of combustible biofuels [TJ]

Types of combustible bio-fuels	2020	2021	2022
from pulp industry	24,955	24,192	23,493
Bionaphtha	1		
FAME	1,276	975	825
HVO	26	600	927
Vegetable oil	4,415	2,162	865
Total	30,673	27,929	26,111

Table 27: Biofuels from vegetable oil by raw product [TJ]

Raw material	2020	2021	2022
Palm oil	3,237	1,665	450
Rapeseed	1,169	351	279
Shea	9	146	136
Total	4,415	2,162	865

Table 28: Biofuels from palm oil by raw material [TJ]

Source	2020	2021	2022
Guatemala	165	87	32
Honduras	254	5	93
Indonesia	1,198	823	151
Columbia	99	184	43
Malaysia	1,521	567	131
Total	3,237	1,666	450

Table 29: Biofuels, emissions and emission savings

Types of combustible biofuels	Emissions 2020	Savings 2021	Savings 2022	Savings 2020	Savings 2021	Savings 2022
	[t CO2eq/TJ]	[t CO2eq/TJ]	[t CO2eq/TJ]	[%]	[%]	[%]
from pulp industry	2.43	1.94	3.17	97.33	97.86	96.52
Bionaphtha	9.57			89.49		
FAME	33.81	33.28	33.02	62.85	63.43	65.27
HVO	8.48	8.32	7.42	90.68	90.86	92.19
Vegetable oil	31.07	30.23	34.23	65.86	66.78	64.01
weighted average of all combustible biofuels	7.86	5.36	5.29	91.36	94.11	94.21

11. Conversion tables, abbreviations and definitions

Table 30: Conversion of energy units

Energy unit	Megajoule [MJ]	Kilowatt hour [kWh]	Terajoules [TJ]	Petajoules [PJ]
1 megajoule [MJ]	1	0.28	0.000001	0.000000001
1 kilowatt hour [kWh]	3.60	1	0.0000036	0.0000000036
1 terajoule [TJ]	1,000,000	280,000	1	0.001
1 petajoule [PJ]	1,000,000,000	280,000,000	1,000	1

Table 31: Density/energy contents

Biofuel type/ Types of combustible biofu-els	Tonne per cubic metre [t/m³]	Megajoules per kilogramme [MJ/kg]
Biofuel from pulp industry	1.32	7
Bioethanol	0.79	27
Bio-LNG	0.42	50
Biomethane	0.00072	50
Biomethanol	0.80	20
Bionaphtha	0.78	38
CP-HVO	0.78	44
FAME	0.883	37
HVO	0.78	44
Vegetable oil	0.92	37
UCO	0.92	37

Table 32: Abbreviations

Abbreviations	Meaning
36th BImSchV	Thirty-sixth Ordinance on the Implementation of the Federal Immission Control Act (Ordinance on the Implementation of the Regulations of the biofuel quota)
38th BImSchV	Thirty-eighth Ordinance on the Implementation of the Federal Immission Control Act Regulation laying down further provisions to reduce greenhouse gas emissions from fuels
CHP	Combined heat and power plant
Biokraft-NachV	Biofuel Sustainability Ordinance
BioSt-NachV	Biomass Electricity Sustainability Ordinance
Btl-FTD	Btl fuel (biomass to liquid) Fischer-Tropsch-Diesel (FTD)
CP-HVO	Co-Processing-Hydrotreated Vegetable Oils
DE scheme	Certification schemes recognised by the BLE in accordance with Article 33 No. 1 and 2 of BioSt-NachV or Biofuels-NachV
EEG	Renewable Energy Sources Act
EU scheme	Voluntary scheme in accordance with Article 32 No. 3 BioSt-NachV or Biokraft-NachV
FAME	Fatty acid methyl ester (biodiesel)
HVO	Hydrotreated Vegetable Oils
LNG	Liquefied Natural Gas
EC Directive 2009/28/EG (Renewable Energies Act)	DIRECTIVE 2009/28/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC
GHG	Greenhouse gas
UCO	Used Cooking Oils (used cooking fats and oils)

Table 33: Definitions

Definitions	Meaning
Biofuel from pulp industry	Biofuels from the pulp industry are energy and lignin-rich by-products during pulp production in the paper industry.
Bioethanol	Bioethanol (ethyl alcohol) is obtained from renewable raw materials by distillation after alcoholic fermentation or by comparable bio-chemical methods.
Bio-LNG	Liquefied biomethane
Biomethane	Biogas is produced as a methane-rich gas from the fermentation of biomass.
Biomethanol	Methanol, like BtL fuel, can be produced via synthesis gas from a wide range of biomass. Methanol can also be produced by converting crude glycerine.
Blending	Addition of e.g. biofuels to fossil fuels (e.g. max. 7% for diesel)
CP-HVO	HVO during joint hydrogenation with mineral oil-based oils in a refinery process
FAME	Biodiesel is the name given to fatty acid methyl ester (FAME), which is produced by the chemical reaction of fats and oils with methanol.
Fischer-Tropsch diesel ("Btl fuel")	synthetic hydrocarbon(s) produced from biomass
HVO	Hydrogenated vegetable oil means vegetable oil which is converted into hydrocarbon chains in a hydrogenation plant by a chemical reaction with hydrogen.
Vegetable oil	Vegetable oil fuel can be obtained from rapeseed or other oil plants, with no chemical conversion as with biodiesel.
UCO	UCO are used cooking fats and oils. They can be used as pure fuel or as a component of FAME.

Table 34: Advanced biofuels

in accordance with the 38th BIm-SchV	according to the DIRECTIVE (EU) 2018/2001
Annex 1 (to Section 1 para. 2 and Section 14 para. 1) Raw materials for the production of advanced biofuels pursuant to Section 14 para. 1	Part A. Raw materials for the production of biogas for transport and advanced biofuels whose contribution to the minimum shares referred to in the first and fourth subparagraphs of Article 25 para. 1 subpara. 1 and 4 may be considered to be twice their energy content
1. Algae that have been cultivated on land in tanks or photobio reactors,	a) Algae, if cultivated on land in tanks or photobio reactors;
2. biomass content of mixed municipal waste, but not separated household waste, for which recycling targets apply in accordance with Article 11 para. 2 a of Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (OJ L 312, 22/11/2008, p. 3), as last amended by Regulation (EU) 2017/997 (OJ L 150, 14/06/2017, p. 1), as amended,	b) biomass share of mixed municipal waste, but not separated household waste, for which recycling targets apply according to Article 11 para. 2 lit. a of Directive 2008/98/EC,
3. biowaste as defined in Article 3 para. 4 of Directive 2008/98/EC from private households subject to separate collection as defined in Article 3 para. 11 of Directive 2008/98/EC,	c) biowaste as defined in Article 3 para. 4 of Directive 2008/98/EC from private households subject to separate collection as defined in Article 3 para. 11 of the same Directive,
4. biomass share of industrial waste unsuitable for use in the food or feed chain, including material from wholesale and retail trade, agro-food industry and fisheries and aquaculture industry, and excluding the raw materials listed in Annex 4.	d) biomass share of industrial waste unsuitable for use in the food or feed chain, including material from wholesale and retail trade, agro-food industry and fisheries and aquaculture industry, and excluding the raw materials listed in Part B of this Annex.
5. straw,	e) straw;
6. liquid manure/slurry and sewage sludge,	f) liquid manure/slurry and sewage sludge;
7. wastewater from palm oil mills and empty palm fruit bunches,	g) wastewater from palm oil mills and empty palm fruit bunches;
8. tall oil pitch,	h) tall oil pitch;
9. crude glycerol,	i) crude glycerol;
10. bagasse	j) bagasse;
11. grape marc and lees,	k) grape marc and lees,
12. nutshells,	l) nutshells;
13. pods,	m) pods;
14. pitted corn cobs,	n) pitted corn cobs;

further 38th BImSchV	further DIRECTIVE (EU) 2018/2001
15. biomass share of wastes and residues from forestry and forest-based industries, i.e. bark, twigs, pre-commercial forestry wood, leaves, needles, tree tops, sawdust, black liquor, brown liquor, sludge, lignin and tall oil;	o) biomass share of wastes and residues from forestry and forest-based industries, i.e. bark, twigs, pre-commercial forestry wood, leaves, needles, tree tops, sawdust, black liquor, brown liquor, sludge, lignin and tall oil;
16. other non-food cellulosic material as defined in Article 2 No. 42 of Directive 2018/2001/EU, as amended,	p) other non-food cellulosic material;
17. other lignocellulosic material as defined in Article 2 No. 41 of Directive 2018/2001/EU, as amended, except sawnwood and veneer logs.	q) other lignocellulosic material except sawnwood and veneer logs.
Annex 4 (to Section 13a) Raw materials for the production of biofuels pursuant to Section 13a	**Part B. Raw materials for the production of biofuels and biogas for transport whose contribution to the minimum shares referred to in the first and fourth subparagraphs of Article 25 subpara. 1 is limited and may be considered to be twice their energy content**
1. Used vegetable oils,	a) Used vegetable oils;
2. animal fats classified in categories 1 and 2 of Regulation (EC) No 1069/2009 of the European Parliament and of the Council of 21 October 2009 laying down health rules concerning animal by-products not intended for human consumption and repealing Regulation (EC) No 1774/2002 (Animal by-products Regulation) (OJ L 300, 14/11/2009, p. 1).	b) animal fats classified in categories 1 and 2 of Regulation (EC) No. 1069/2009.