



MINISTERIUM
FÜR EIN
LEBENSWERTES
ÖSTERREICH

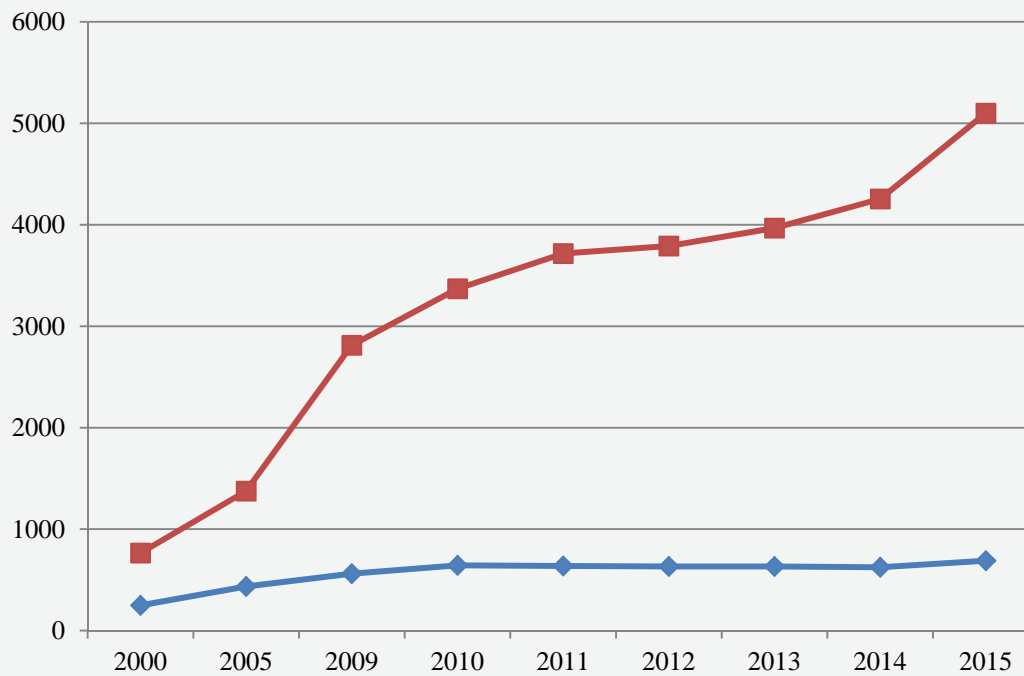
HBLAuBA KLOSTERNEUBURG
WEIN- UND OBSTBAU

USAGE OF COPPER IN AUSTRIAN ORGANIC WINERIES

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ORGANIC VITICULTURE - SUBSIDISED AREA IN AUSTRIA (SOURCE: GRÜNER BERICHT 2016: 162)



◆ Organic wineries
■ Vineyards in ha

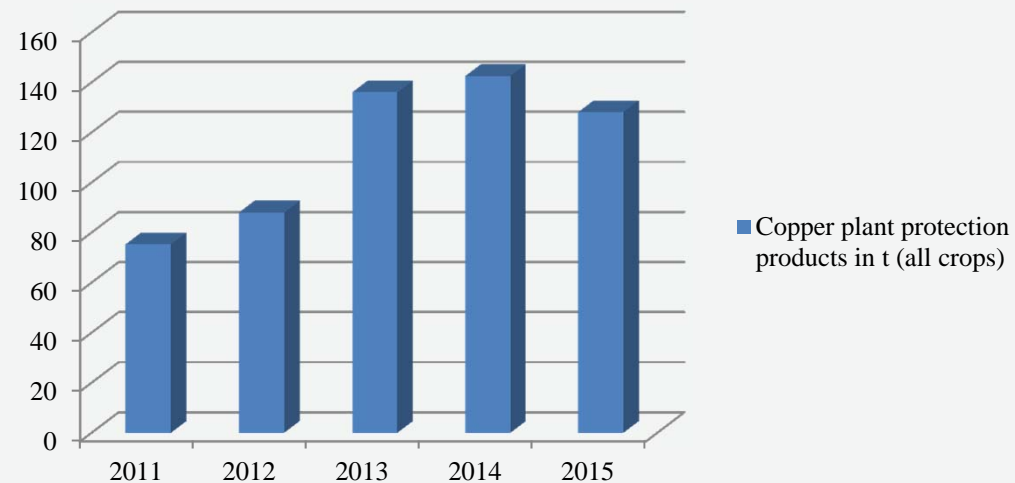
2015:
689 wineries (4.6%)
5,100 ha (11.65%)

LEGAL REGULATIONS/ACTIVITIES

- Organic associations (Bio Austria,...) max. 3 kg/ha pure copper
- Subsidy directive: max. 3 kg/ha pure copper
- Registration of copper products: max. 3 kg/ha pure copper (in case of imminent danger 4 kg in Austria – AGES)
-  National copper task force since January 2015

PLANT PROTECTION PRODUCTS – IN AUSTRIA SOLD QUANTITY OF THE ACTIVE INGREDIENT (SOURCE: GRÜNER BERICHT 2016: 139)

**Copper plant protection products in t
(all crops)**



PLANT PROTECTION PRODUCTS IN AUSTRIA

| Active component | Reg. Nr. | Product | Pure copper | Applications/max. quantity | Quantity/ha | Waiting period (days) |
|------------------|----------|-------------------|-------------|-----------------------------------|-------------|-----------------------|
| Kupferhydroxid | 3404 | Funguran progress | 350g | 4, or unlimited till under 3kg/ha | 1 - 2kg | 21 |
| | 3405 | Cuprozin progress | 250g | 7, or unlimited till under 3kg/ha | 1 - 1,6l | 21 |
| Kupfersulfat | 2162 | Kupferol | 190g | 8 | 1, - 4l | 21 |
| | 2097 | Cuproxtat | 190g | 8 | 1, - 4l | 21 |
| Kupferoxychlorid | 3034 | Flowbrix | 380g | 6 | 1- 3l | 21 |
| | 3034 | Cuprofor flow | 380g | 6 | 1- 3l | 21 |

USAGE OF COPPER IN ORGANIC WINERIES – SURVEY

| Wine growing area | Wineries | Area (ha) | 2008 | 2010 | 2012 | 2013 | 2014 | 2015 |
|-------------------|----------|-----------|------|------|------|------|------|------|
| Weinviertel | 10 | 162,0 | 2,6 | 3,1 | 2,4 | 2,5 | 2,7 | 1,8 |
| WLWA, WLKA, WLKT | 9 | 241,0 | 3,3 | 2,2 | 2,1 | 2,1 | 2,3 | 1,7 |
| Wagram | 6 | 75,0 | 3,6 | 3,1 | 1,7 | 2,2 | 2,1 | 1,7 |
| Thermenregion | 5 | 90,0 | 2,7 | 2,0 | 2,0 | 2,2 | 2,3 | 1,6 |
| Burgenland | 12 | 215,0 | 2,9 | 2,0 | 1,8 | 1,9 | 2,2 | 1,9 |
| Wien | 5 | 30,0 | 2,5 | 2,2 | 1,9 | 2,1 | 2,4 | 1,8 |
| Steiermark | 10 | 108,0 | 2,5 | 2,5 | 2,0 | 1,9 | 2,6 | 2,6 |
| Gesamt | 57 | 921 | 2,9 | 2,4 | 2,0 | 2,1 | 2,4 | 1,9 |

With the usage of potassium phosphonate

Source: Andreas Harm 2015, organic wine consultant, chamber of agriculture

REDUCTION STRATEGIES 2015



| | V1 Kupferreduktion1 (max.1500g/ha) | V2: Kupferreduktion 2 max. 1500g/ha | V3 Standard (max.3000g/h |
|-----|---|---|---|
| VB1 | 250ml Funguran progress/ha Netzschwefel 1%, Cocana 1% | 1% Mycosin Vin, 0,2% Algenextrakt (Resistance) 1% Netzschwefel, 0,1% Prev | 500ml Funguran progress/ha Netzschwefel 1%, Cocana 1% |
| VB2 | 300ml Funguran progress/ha Netzschwefel 1%, Cocana 1% | 1% Mycosin Vin, 0,2% Algenextrakt (Resistance) 1% Netzschwefel, 0,1% Prev | 600ml Funguran progress/ha Netzschwefel 1%, Cocana 1% |
| VB3 | 650ml Funguran progress/ha Netzschwefel 1%, Cocana 1% | 1% Mycosin Vin, 0,2% Algenextrakt (Resistance) 1% Netzschwefel, 0,1% Prev | 1300ml Funguran progress/ha Netzschwefel 1%, Cocana 1% |
| NB1 | 800ml Funguran progress/ha Netzschwefel 1%, Cocana 1% | 1200ml Funguran progress/ha Netzschwefel 1%, Cocana 1% | 1600ml Funguran progress/ha Netzschwefel 1%, Cocana 1% |
| NB2 | 1200ml Cuprocin progress, 1% Netzschwefel, 0,5% Wasserglas, 0,1% Prev | 1200ml Cuprocin progress, 1% Netzschwefel, 0,5% Wasserglas, 0,1% Prev | 2400ml Cuprocin progress, 1% Netzschwefel, 0,5% Wasserglas, 0,1% Prev |
| NB3 | 500ml Cuprocin progress, 1% Netzschwefel, 0,5% Wasserglas, 0,1% Prev | 900ml Cuprocin progress, 1% Netzschwefel, 0,5% Wasserglas, 0,1% Prev | 1000ml Cuprocin progress, 1% Netzschwefel, 0,5% Wasserglas, 0,1% Prev |
| NB4 | 500ml Cuprocin progress, 1% Netzschwefel, 0,5% Wasserglas, 0,1% Prev | 900ml Cuprocin progress, 1% Netzschwefel, 0,5% Wasserglas, 0,1% Prev | 1000ml Cuprocin progress, 1% Netzschwefel, 0,5% Wasserglas, 0,1% Prev |
| NB5 | 500ml Cuprocin progress, 1% Netzschwefel, 0,5% Wasserglas, 0,1% Prev | 900ml Cuprocin progress, 1% Netzschwefel, 0,5% Wasserglas, 0,1% Prev | 1000ml Cuprocin progress, 1% Netzschwefel, 0,5% Wasserglas, 0,1% Prev |
| NB6 | 500ml Cuprocin progress, 1% Netzschwefel, 0,5% Wasserglas, 0,1% Prev | 900ml Cuprocin progress; 1% Netzschwefel, 0,5% Wasserglas, 0,1% Prev | 1000ml Cuprocin progress, 1% Netzschwefel, 0,5% Wasserglas, 0,1% Prev |

VINTAGE 2016 (1)

Frost end of April



Hail since June



Condition

- Heavy precipitation
- Continuing damp weather
- First infection in May

Advices:

- Application before every precipitation!
- Canopy management!

VINTAGE 2016 (2)

- Result
 - Good development conditions for *Plasmopara viticola* since end of May in all Austrian wine growing areas!
 - → Copper applications before blossom were necessary!
 - Periodical applications with 200 – 300g/ha, 9 – 15 applications per winery!
 - Copper quantity: 2,8 – 3,9 kg/ha!
 - → Emergency regulation (4 kg/ha)!



SUMMARY AND DISCUSSION

- **Claim** (acceptance) for **potassium phosphonate** for organic production
- **to be able to work with 3-4 kg copper / ha /year,**
- **to cope with regional circumstances** (climate, disease pressure etc.) and to further reduce copper quantity