

# BOVILIS Cryptium<sup>®</sup>



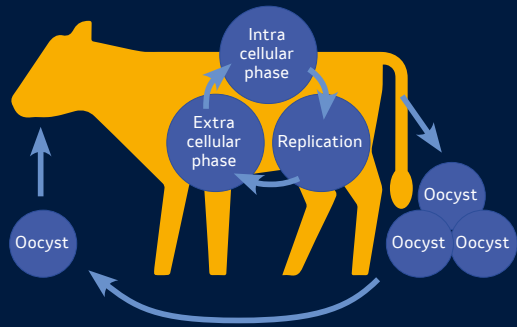
## CRYPTOSPORIDIOSIS CONTROL PLANNER

5 STEPS TO CONTROL  
CRYPTOSPORIDIOSIS

# CRYPTOSPORIDIOSIS CONTROL PLANNER



*Cryptosporidium parvum* is a protozoan parasite that can infect a range of mammals. In cattle, at peak shedding, billions of oocysts are excreted in the faeces for 7-10 days. Only 17 oocysts are needed to cause infection, so a single calf has huge potential to infect others.<sup>1</sup>



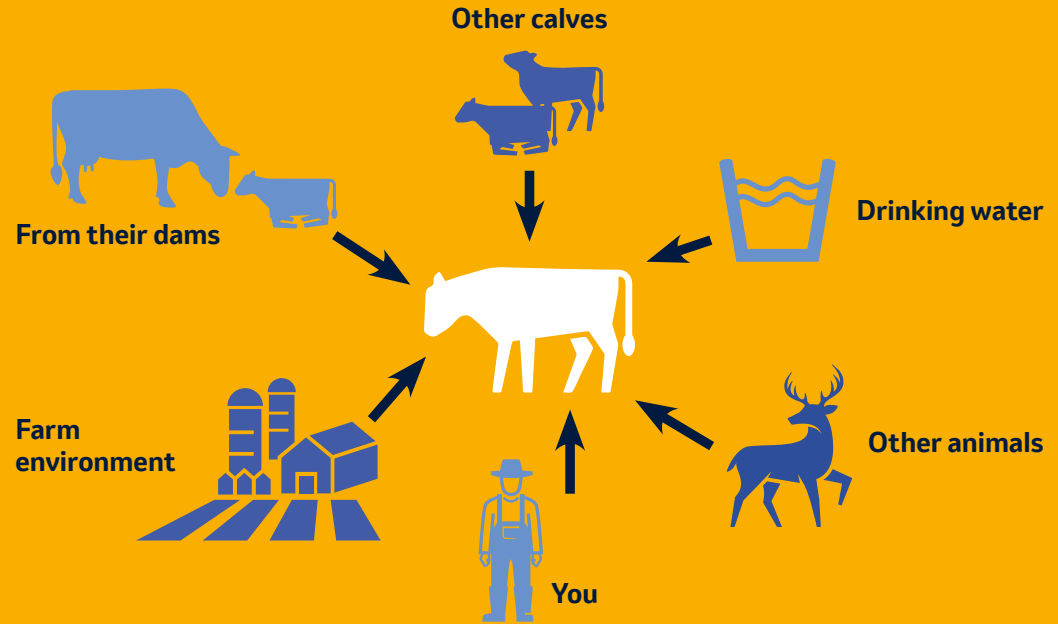
Removal of the parasite from contaminated housing is extremely difficult. The disease is also zoonotic, so can be passed to humans and cause clinical signs, which can be severe in immuno-compromised individuals.<sup>1</sup>

Cryptosporidiosis is a contributor to the Calf Scour Disease Complex, which is a UK National Office of Animal Health (NOAH) Category 1 disease, meaning its prevention should be prioritised.<sup>2</sup>



Clinical infections are most common in neonatal animals, whereas in adult animals infection leading to clinical signs is less likely as their immune systems are more developed.

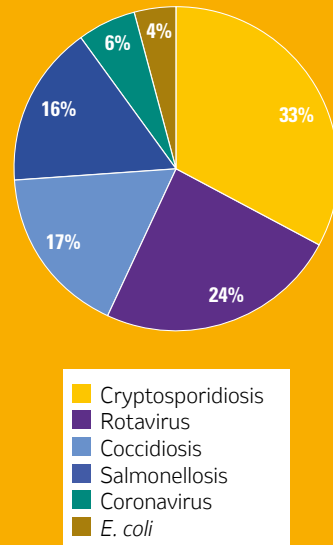
## Calves can pick up the infection from many sources<sup>2</sup>



## Causes of infectious calf scour:<sup>3</sup>

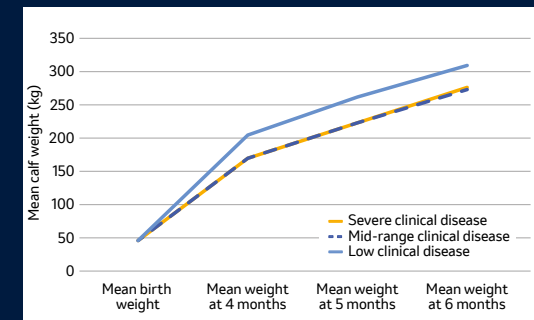
- ▶ **CRYPTOSPORIDIUM** Mostly seen in calves 7-14d old, but can strike at any time. Causes intermittent scour, intestinal damage and potentially death.
- ▶ **ROTAVIRUS** Mostly seen in calves 5-14d old, destroys small intestinal cells, causing profuse diarrhoea.
- ▶ **CORONAVIRUS** Seen in calves 3-30d old, attacks the small and large intestine, often damage is permanent and severe.
- ▶ **E. COLI F5 (K99)** Mostly seen in calves <5d old. Enterotoxins produced when it attaches to gut cells causing profuse watery diarrhoea and often death.
- ▶ **COCCIDIA** Mostly seen in calves post weaning, but can strike at any time. Causes permanent gut damage before scour appears, making it hard and costly to tackle.
- ▶ **SALMONELLA** Can strike at any age causing fever and mortality. Enterotoxins produced cause watery diarrhoea with mucous and blood, also produces other clinical signs i.e. BRD, ear tip necrosis etc.

Calf diagnoses by pathogen 2019-2023<sup>4</sup>



In calves, severe damage to the lining of the intestines leads to reduced ability to absorb nutrients, water and salts, profuse watery diarrhoea, dehydration, weight loss, dullness and sometimes death.

- ▶ Calf scour costs the UK cattle industry an estimated **£11M/year** as extensive gut damage leads to reduced lifetime performance.<sup>5</sup>
- ▶ Cryptosporidiosis in the first 16 days of life significantly reduces weight gain over a 6-month period, with infected calves weighing on average 34kg less.<sup>6</sup>



# 5 STEPS TO CONTROL CRYPTOSPORIDIOSIS

## 1 DIAGNOSE

Veterinary consultation is important for accurate diagnosis of the cause. Treatments differ depending on the pathogen(s) involved, and it is unreliable to decide on the cause based on visual observations alone. Incorrect treatment can result in poor recovery, delayed recovery and inappropriate use of antibiotics, resulting in longer term issues.<sup>7</sup> MSD ScourCheck kits can be used on farm for rapid detection of cryptosporidiosis, *E. coli* K99, rotavirus and coronavirus. Further lab testing of faeces is recommended if ScourCheck comes back negative or other pathogens such as coccidia or *salmonella* are suspected.



## 2 COLOSTRUM

Implementation of the 5 Qs of colostrum management is critical to setting your calves up to having the best possible immunity.

Supplementing the milk feed with colostrum or transition milk for the first two weeks of life can reduce diarrhoeal disease and improve average daily gain.<sup>8</sup>

### The 5 Qs of colostrum explained

	EXPLANATION	TARGET	ACTIONS REQUIRED
QUANTITY	Ensure all calves receive adequate colostrum	Calves should ingest minimum 1 litre/10kg bodyweight quickly plus another follow up feed	<ul style="list-style-type: none"> <li>Observe at least 20-30 minutes of suckling</li> <li>Measure colostrum accurately and feed via nipple feeder</li> <li>If other methods not possible, tube feed colostrum</li> </ul>
QUALITY	Measure colostrum quality – fed and stored – to ensure minimal standards before feeding	At least 50g/l of antibodies (IgG)	Brix Refractometer reading of 22% or higher for all colostrum fed
QUICKLY	Ensure colostrum is ingested promptly	1 litre/10kg bodyweight within 4-6 hrs and repeated again within 12 hrs	Be aware of time post calving with protocol in place for all times of day/night
SQUEAKY CLEAN	Colostrum contamination with dirt and organic matter will affect protection provided and risks introducing disease	Harvest colostrum hygienically. Feed quickly or store hygienically in fridge or freezer. Ensure feeding equipment is clean	Store for a maximum of 1 hour out of fridge, always covered. Use refrigerated colostrum within 2 days. Use frozen colostrum within 12 months.
QUANTIFY	'Ask' the calves if colostrum management has been effective	Ensure calves have Total Protein levels over 5.2mg/ml	Regular vet-led blood sampling of calves aged 1-7 days old

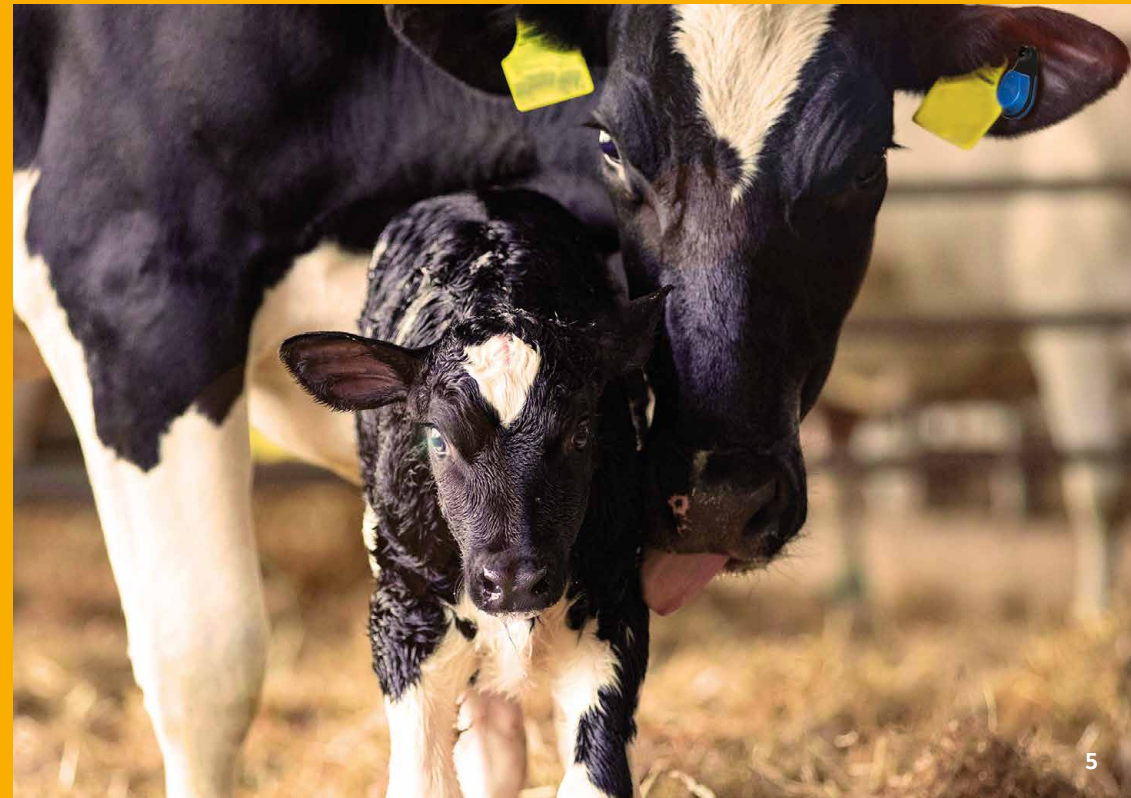
## 3 ENVIRONMENT & MANAGEMENT

The cause of scour is often multi-factorial. Good biosecurity, vaccination and nutrition policies will help to minimise cases of scour on farm. Muck out, steam clean, disinfect and leave to dry as often as you practically can. Many common farm disinfectants are not effective against *Cryptosporidium*, so ensure you use those which are effective and licensed (see list below). Leave pens to dry fully as *Cryptosporidium* does not like desiccation.

Do not mix young calves with older ones as older healthy-looking calves may still shed *Cryptosporidium* oocysts. Keep all calves warm and hydrated, especially if they are scouring. Quarantine sick calves as soon as possible after scouring starts. Do not mix them back in with the healthy calves for at least one week after scouring stops. Make sure you tend to healthy calves before sick ones, so pathogens aren't transported back to the healthy group.

### Effective disinfectants<sup>2</sup>

- ▶ 2-3% KENO™COX Kills 95% oocysts after 2 hours contact time
- ▶ 2-4% Neopredisan 135-1 Kills 95% oocysts after 2 hours contact time
- ▶ 10% Ox-Virin Reduced oocysts infectivity after 1 hour contact time
- ▶ 3% Hydrogen Peroxide Reduced oocysts infectivity after 4 minutes



# 4 PREVENTION

## BOVILIS® ROTAVEC® CORONA

Vaccinate dams against rotavirus, coronavirus and *E. coli* (F5 (K99) and F41) to minimise the impact of these other scour-causing pathogens. A single dose can be given prior to calving at the same time as Bovilis Cryptium®. It has a 28-day in-use shelf life to provide convenience.

## BOVILIS CRYPTIUM®

This unique vaccine against *C. parvum* is administered in the third trimester of pregnancy, to be completed at least 3 weeks before calving, to pregnant heifers and cows to raise antibodies in their colostrum. This allows passive immunisation of calves to reduce clinical signs, including diarrhoea caused by *C. parvum*.

The protection of calves depends on adequate ingestion of colostrum and transition milk from vaccinated cows. All calves must be fed colostrum and transition milk for at least the first 5 days of life.

Bovilis Cryptium and Bovilis Rotavec Corona together protect against the 4 most common calf diarrhoea pathogens:<sup>2,3</sup>

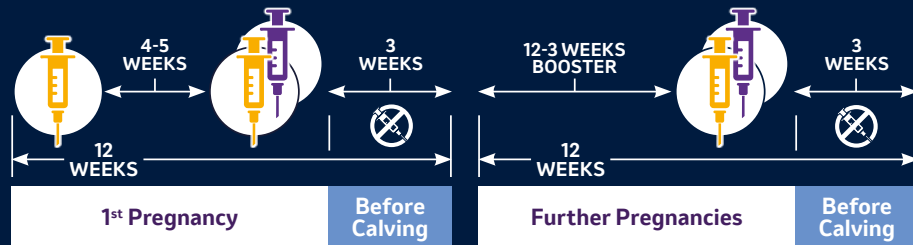
▶ *Cryptosporidium parvum*

▶ Rotavirus

▶ Coronavirus

▶ *E. coli*

Bovilis Cryptium can be administered at the same time as Bovilis Rotavec Corona, at different vaccination sites. Further information on best practice vaccination is on page 13.



**BOVILIS**  
Cryptium®



Primary Vaccination is 2 doses (SC), 4-5 weeks apart, in the 3rd trimester of pregnancy, completed at least 3 weeks before calving.

These doses are preferably administered at different sides of the animal.

Booster is 1 dose in the 3rd trimester of each subsequent pregnancy, completed at least 3 weeks before calving.



**BOVILIS**  
Rotavec Corona



1 dose (IM) 12-3 weeks before calving. 1 booster dose during each subsequent pregnancy. Bovilis Rotavec Corona can be given at the same time, with the first or second vaccination of Bovilis Cryptium.



# 5 TREATMENT

Despite the preceding 4 steps, in situations with very high infectious pressure, treatment of individual calves may still be warranted. Calves with diarrhoea are often dehydrated so it is crucial to provide rehydration in the form of oral or intravenous fluids (in addition to the normal milk feed). Additional medication such as pain relief and antibiotic treatment may be required under veterinary advice.

## HALOCUR®

Halocur contains Halofuginone, the only non-antibiotic active substance available for calves to help control cryptosporidiosis. It is indicated primarily for *Cryptosporidium* prevention but can also be used for early treatment of infected animals. In animals treated with Halocur, a reduction of oocyst excretion has been demonstrated and a reduction of the severity of calf diarrhoea due to *Cryptosporidium parvum*.



As a prevention of diarrhoea due to diagnosed *Cryptosporidium parvum*, in farms with history of cryptosporidiosis, dose all new-born calves within the first 24-48 hours of life then follow the protocol as detailed in the product leaflet. As a treatment, dose all calves within 24 hours of diagnosis of cryptosporidiosis and then follow the protocol as detailed in the product leaflet. If you are using Halocur, ensure to treat calves after feeding for 7 consecutive days and dose as accurately as possible.

# CRYPTOSPORIDIOSIS CONTROL PLANNER QUESTIONNAIRE

Farm name:		Date:	Herd type:
Herd size:	Calving pattern:		No. of calves reared yearly:
How are calves reared to weaning (pairs, groups, with dam, calf rearer etc.):			Have you had <i>Cryptosporidium parvum</i> diagnosed on farm previously?:

Answer each of the questions in the following five sections. **Score yourself 2 points for 'yes/always', 1 point for 'sometimes' and 0 points for 'no/never'.** Scores are a guide to help identify key areas to focus on when reducing calf scour, and no weighting has been applied to individual actions.

## 1 DIAGNOSE

Action	Score:	2	1	0
Have you diagnosed the cause of calf scour?				
Was the diagnosis within the last 6 months?				
Have you discussed the diagnosis with your vet recently?				
Have you implemented actions based on diagnostic results?				
Do you undertake total proteins on calf bloods to check for adequate colostrum transfer regularly?				
<b>Total:</b>				

## 2 COLOSTRUM

Action	Score:	2	1	0
Do you ensure every calf has had 1 litre/10kg (4 litres for an average sized calf) of colostrum in the first 4-6 hours of life?				
Do you ensure calves have at least another 2-4 litres in the subsequent 12 hours of life?				
Are calves fed colostrum/transition milk for longer than 24 hours?				
Do you test the colostrum of all cows for quality? (2 points for refractometer, 1 point for colostrometer, 0 for no)				
Do you harvest and store colostrum hygienically and clean and disinfect colostrum storage and feeding equipment after every use?				
<b>Total:</b>				

## 3 ENVIRONMENT & MANAGEMENT

Action	Score:	2	1	0
Do you muck out, steam clean, disinfect and leave pens to rest and dry out between calves or batches of calves?				
Is youngstock stocking density appropriate? At least 1.5m <sup>2</sup> per animal for calves under 150kg, 2m <sup>2</sup> for calves over 200kg and 3m <sup>2</sup> if over 300kg.				
Are only calves of a similar age range kept in the same pen? No more than 6-8 calves/pen with an age range of 1-2 weeks maximum.				
Do you use disinfectants which are proven against <i>Cryptosporidium</i> for the correct duration of contact time? (See table on page 5)				
Do you clean and disinfect all feeding and water utensils daily?				
<b>Total:</b>				

## 4 PREVENTION

Specific vaccination protocols should be tailored to each individual herd. Please ask for detailed advice from your veterinary surgeon or animal health advisor.

Action	Score:	2	1	0
Do you vaccinate ALL eligible animals (i.e. all pregnant females 12-3 weeks prior to calving) with a dam vaccine for rotavirus, coronavirus and <i>E. coli</i> , e.g. Bovilis Rotavec Corona, if these have been previously diagnosed?				
Do you vaccinate ALL eligible animals (i.e. all pregnant females 12-3 weeks prior to calving) with a dam vaccine for cryptosporidiosis, e.g. Bovilis Cryptium, if this has been previously diagnosed?				
Do you ensure you use the correct dose and route of vaccines by referring to the pack insert or datasheet?				
Do you transport and store your vaccines between 2°C and 8°C?				
When vaccinating, do you ensure you only vaccinate healthy animals, your vaccination equipment is kept clean and in good working order, and needles are changed frequently?				
<b>Total:</b>				

## 5 TREATMENT

Action	Score:	2	1	0
Do you isolate sick calves as soon as they are identified and manage them after handling the healthy calves?				
Do you give scouring calves rehydration solution and access to fresh water, in addition to their usual milk feed?				
Do you give scouring calves pain relief if appropriate (avoiding use in dehydrated individuals unless under veterinary advice)?				
Do you use Halofuginone (Halocur) for 7 days as soon as scour is identified/from the day of birth? (Where <i>Cryptosporidium</i> has previously been diagnosed)				
Do you avoid using antibiotics (including bolus, powder and injection) for prevention/treatment of scours unless instructed by a vet?				
<b>Total:</b>				



# BOVILIS CRYPTIUM® - HOW TO GET THE MOST FROM VACCINATION

## » COLOSTRUM FEEDING

Protection of calves depends on adequate ingestion of colostrum and transition milk from vaccinated cows. It is recommended that all calves are fed vaccine-fortified colostrum and transition milk for at least the first 5 days of life. This is easily achieved in suckling calves; however dairy calves removed from dams need to be managed appropriately.

It is recommended calves are supplemented with the following amounts of colostrum/transition milk from vaccinated dams, which can be fed separately or added to the usual milk replacer feed:

- » At least 3 litres first-milking colostrum within 6 hours after birth on day 1
- » At least 1 litre first-milking colostrum on day 2
- » At least 0.5 litres second-milking colostrum/transition milk on days 3-5



## COLOSTRUM FEEDING PAYS FOR ITSELF

Vaccinating your pregnant heifers and cows with **Bovilis Cryptium** raises antibody levels in their colostrum. This **immunity is then passed on to their calves** via colostrum and transition milk, reducing clinical signs of disease caused by *C. parvum*.



Dairy calves

Select the feeding method that fits the farm's existing working method the best.

**FEED 5 DAYS**  
of colostrum and transition milk from a vaccinated dam.<sup>9</sup>

OR

**SUPPLEMENT THE USUAL FEED**  
with at least 3 litres of colostrum on day 1, 1 litre on day 2 and 0.5 litres colostrum/transition milk on days 3-5.

**LET THE CALF SUCKLE THE DAM AS NORMAL**

Bovilis Cryptium provides protection as long as calves suckle for a minimum of 5 days.



Suckling beef calves

## » BEST VACCINATION TECHNIQUE

Injection site reactions or lumps are very common after vaccination with Bovilis Cryptium; these may be warm and painful and will decrease over time. The well-being and behaviour of animals was not affected by the lumps in clinical trials.<sup>10</sup> It is prudent to follow strict vaccination technique and appropriate care of vaccination equipment to reduce the impact of vaccine site reactions. Please refer to the data sheet for full details regarding use of the product.

- » Only healthy animals should be vaccinated.
- » Ensure cattle are clean, dry and encounter minimal stress during handling.
- » Use of a 2ml administration multidose syringe ('vaccination gun') is recommended. Ensure the multidose syringe is clean prior to use. Ensure the syringe is calibrated for the correct dose. Immediately following use, the multidose syringe should be fully cleaned according to manufacturer's guidelines.
- » Needles should be sterile and sharp prior to use and changed frequently.
- » Shake the vaccine bottle well before use.
- » Vaccination should be given in the side of the neck, through a clean dry area of skin. Bovilis Cryptium is given subcutaneously (under the skin). Ensure the needle does not penetrate the underlying muscle or any structures of the neck. A shorter needle (1/2- 1 inch) will make this easier.
- » If the site to be injected is dirty, clean the skin and swab the injection site with an alcohol-impregnated wipe or cotton wool prior to vaccination.
- » When using concurrently alongside Bovilis Rotavec Corona, ensure the vaccines are given in different sites. Bovilis Rotavec Corona is licensed for intramuscular use.

# NOTES

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Please scan for further information

#### REFERENCES

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10. Bovilis Cryptium European EPAR document. [https://ec.europa.eu/health/documents/community-register/2023/20231123160844/anx\\_160844\\_en.pdf](https://ec.europa.eu/health/documents/community-register/2023/20231123160844/anx_160844_en.pdf)

Bovilis Cryptium® contains inactivated *Cryptosporidium parvum* Gp40. **POM-V**.

Bovilis® Rotavec® Corona contains inactivated rotavirus, coronavirus and *E. coli* strain CN7985, serotype O101:K99:F41. **POM-VPS**.

Halocur® contains 0.5 mg/ml halofuginone lactate in an aqueous excipient. **POM-V**.

Further information is available from the respective SPC, datasheet or package leaflets.

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Advice should be sought from the medicine prescriber.

Prescription decisions are for the person issuing the prescription alone.

**Use Medicines Responsibly.**

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